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THE AFFECTIVE NATURE OF ILLUSION AND HALLUCINATION.

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INTRODUCTION.

The terms 'Illusory experience' and 'Hallucination' have been used so specifically by students of psychiatry that their wider implications have been submerged; in consequence we are prone to forget that both illusion and hallucination enter most intimately into the fabric of normal mental life.

In the course of ordinary conversation, or in moments of reverie, the acts of illusory experiencing and of hallucinating are playing a creative part. They do not occur merely as excrescences upon the surface of the mental stream like foam—the product of friction between the stream and the external air, but belong integrally to that stream, cast up from deeper mental layers, and adding something to the dynamic of the main current, urging it forward with an added power of interpreting both past and present. External relations have, in our mind, a definite place in the system of hallucination-production. A physical analogy will help us. Picture a gas that is held in solution in water. Under ordinary temperature and pressure there will be a certain amount of the gas dissolved and there will be an equilibrium under these given conditions between dissolved and undissolved gas, the dissolved gas being to some extent in a state of ionic equilibrium with the ionic elements of the solvent. Subject the system to pressure by forcing more gas into the solvent and a new state of equilibrium will be reached. If now the pressure is released gas will come out of solution rising to the surface as bubbles until the new normal equilibrium is reached with a standard solution of the gas.

In the mind the pressure of external circumstances keeps in solution a large amount of mental material which under other circumstances will escape. If the external world changes its pressure upon the subject the overloading

of the mind is expressed in the production of hallucination and illusion. This is no true analogy, since the forces governing mental activity are far more complicated than such a physical analogy would suggest. But to some extent we can state the relationship of organism to its environment, of mind to the external world, as in the nature of a balanced action, but one of three dimensions, as in a gas formula of the Gay-Lussac type, where the disturbing influence of temperature—or in mental terms of our analogy, affect—will disturb the equilibrium of volume-pressure, calling for a new equilibrium or an escape into a new phase. The mind, like a two-headed Janus, looks backwards into itself to interpret the data of sense and forward into the data of sense for the realisation or satisfaction of conative trends or wishes.

So-called academic psychology has been deeply concerned with the subject of the construction of our world of external perception. It has discovered formally that without part experiences there would be no appreciation of the data of the senses, and that without the ' drives ' of instinctual needs the external world would not be crowded with such objects of interest as we actually find in it. The trinity of cognition, feeling and conation gives meaning to the external world, and if the external world meets us halfway, as Ward has expressed it, it is only because we are part of that world or make ourselves part of it. In this way the choir of Heaven is the echo of our wishes and the furniture of earth serves our practical needs.

Illusory and hallucinatory experiences cannot be entirely alien to this system. Subjectivity insinuates itself into the objective world, battening upon it, as it were, and it is because of this reciprocal permeation—this absorbtion of the one world by the other—that the mind appears to us in its creative and disintegrative aspects.

As far as our direct perception of the external world is concerned, although affectivity plays its part, it is by no means the dominant partner, the elder brother, as it were, of the trinity of cognition, feeling, and conation ; it merely supplies the mood colouring with which an object is assimilated to experience or with which situations are met. It is the colour or physiological tone which is felt as a cœnæsthesia before the specific conative trend is narrowed down to the moment of the act. When an organism so narrows down its point of contact with reality, it acts fully and wholly in conformity with its environment; it lives in the stoic sense harmoniously with nature, that is, at that moment the organism and environment become almost merged into one another. Conative trends, however, are not always satisfied. Certainly in man they are always suffering qualification and ' sidetracking.' Psychoanalytic approaches to the mental life, amply demonstrated this fact. Conative trends come into conflict one with another, and the subject finds as *modus vivendi* other means of satisfying those ' urges ' which are inhibited in the aims. Regression is one of them, a method of satisfaction that is found in some form or another in all the aberrations of mind and in all the minor disturbances of character.

On the other hand, social interpretation in its widest sense from family to the community stands as censor in varying degrees of complexity (ego-ideal, parental image—God—Society, social mechanism, sometimes projected further on to natural procresses, *e.g.*, lightning, electricity, poison). This censorship is expressed objectively in the same way as an ego-ideal is externalised or objectivised as a projection in the external world—the hallucinatory experience. Thus hallucinatory experience serves to express the subjective attitude to an unresolved conative trend at some level of experience, or the subjective fear of one of the inhibitory forces, whatever its disguise, in an objective way. By this process of objectivising the subject delivers itself of the responsibility of being itself the inhibitor of its own desires, or the creator of its own world of illusion. Affectivity or mood colouring is the peculiar quality of all such projective experiencing.

We shall show later by illustration of our own cases and those of others that there are two broad types of hallucinatory experience. At this point, in the light of the above general considerations, these types will be merely defined. We may divide hallucinations into (*a*) hedoniphoric hallucinations, *i.e.*, those which yield positive subjective states of satisfaction; and (*b*) nociphoric hallucinations (*νοσο-φόρος*—bringing distress), *i.e.*, those which bring about subjective states of distress with fear or terror as their accompanying mood colouring. Although both these forms are governed by repressive motives the former are more markedly so than the latter. The hedonic type is most characteristic of childhood hallucinations, which play a part in the normal growth of the young mind. They express a mere untrammelled fancy. The latter already shew the influence of censorship. It will be argued later that such a distinction may prove of prognostic as well as of diagnostic value.

It is within the experience of everyone that sense data are frequently misinterpreted. Each one of us has from time to time, and for brief moments only seen, persons where there are only trees or shadows, or heard voices where there have only been sounds with no proper human character in them. In some cases not without foundation these illusory experiences have been attributed to fleeting or even permanent disturbance of sensory function or of those cortical areas of the brain which register particular data of sense. Pfeiffer describes a case of a schizophrenic woman who would conjure up and draw the illusion produced by closing the eyes, or pressing upon the globe of the eye. The results obtained were obviously related to the retinal patterns produced by the coursing of the corpuscles through the retinal capillaries. The latter drawings shew how these were 'worked up' into grotesque faces upon the basis of the schizophrenic fancies of the patient's mind.

Fournay quotes at length a case of lilliputian hallucinations coming on with the development of a cataract in an old man (these hallucinations were hedoniphoric in type). Gronberg deals with the extraordinary case of a patient suffering from hemianopia following bronchiectasis. This patient

complained of hallucinations of hedonic character which disappeared when glasses were provided with five diopters over the hemianopic area. Henschen quotes a similar case of hallucinosis following hemianopia. The hemianopia in this case was on the left but the hallucinations appeared on the right. Tomaschewski describes a case of hemianopia with hallucinations which was not relieved by deprivation of light. This, however, was probably a case of hemilateral hallucination which one can claim as being of central origin.

In cranial injuries and particularly in tumours of the temporosphenoidal region hallucinations of a variety of forms have been noticed by many observers (Bogaert, Foster Kennedy, Dupouy, Christoffel). Salomon is definitely of the opinion that hallucinations particularly of the lilliputian variety are organically determined and suggests a theory of the error of projection, *i.e.*, that the irritation is retinal and the objects projected are retinal in size and not synthesised into the cortical interpretation of visual magnitudes. Clérambault also adopts the organic attitude towards hallucinations and says that they must have their site of origin in those places which are reckoned amongst the highest, *i.e.*, where the representation of the self is situated. He also says that mental automatism, *i.e.*, the state of being automatically governed by processes apparently outside self control, is governed by basal nuclear changes. " L'association des hallucinations s'explique par des causes organiques et non par l'ideogenèse."

The data of sensory epilepsy are rich in cases of the organic correlates of its hallucinosis. Obanio's case is a complicated one and of theoretical importance. The patient complained of a hallucination of seeing his mirror image appearing to him. This was followed by an olfactory hallucination of the smell of methyl salicylate. During the attacks he felt impelled to move forward rapidly and his face became deadly pale. In a case of our own the full epileptic attack was preceded by an overpowering smell of perfume of the most cloying variety which made all his limbs tremble with a feeling of passion. This patient had a gunshot wound of the right temporoparietal region.

Laignel-Lavastine has discussed a case of hallucinosis of lilliputian variety following fractured vault with commotio cerebri. Nouët quotes a similar case. The literature of hallucination abounds with cases of toxic delirium producing projection of images into the external world (Lelong, Obanio, Bouyer, Dupouy, Fleming.)

It must initially be admitted that whatever be our method of describing the mind-body relationship, alterations in the state of the brain have a profound effect upon mental synthesis and determine the liberation of the phenomena with which we have dealt. According to Ceillier this modification gives rise to mental automatism or in Janet's terms " une affaiblissement de la ' tension psychologique.' " But what we are obliged to consider from the point of view of mental dynamics is this :—If organic lesions produce two effects, viz., absence of phenomena or breaking down of integration, it must follow that if the mental

disturbance produced is associated with organic change then one of two things must happen : (1) Mental deprivation, or (2) removal of inhibitory processes allowing for the escape or assertion of those processes hitherto checked by such inhibitions, *i.e.*, release of lower centres which become autonomous, *e.g.*, the mass reflex below a completely transected cord, or rigidity after decerebration. Hallucinations cannot follow from the first, for deprivation of a mechanism could not produce such a positive experience as a projected image. If from the second, then they must result from the breakdown of inhibitory forces which when in action make up the integrity of the whole central nervous system. It therefore follows that the loosening of inhibition has allowed the escape of processes hitherto integrated in the whole personality, or at least inhibited from full expression. If the appearance of the hallucinations were purely one of escape they would be structureless and chaotic—having no functional purpose whatsoever and being completely unsystematised. That some such arise we have no doubt—pure sensory hallucinations or illusory experiences sometimes are of this nature. But even superficial investigation of hallucinatory experiences shows that they are functional, are the product of conflicting forces, and to this extent have a positive quality. They are in themselves new to the subject, that is they are not sensory vestiges but are worked-up products of mental activity. The purely neurological view of Clérambault and others is therefore completely untenable.

The release of inhibition may thus be regarded as the liberation of mental elements which at one time were organised integrally within the personality. But in so far as hallucinations are organised experiences and not merely structureless and chaotic fragments the process of hallucination formation is not merely one of liberation. That fragmentary illusions and hallucinations exist there is no doubt and where they do exist we may presuppose either a profound degree of mental deterioration or the existence of local irritation of cortical areas which arises from time to time from a variety of causes. Recognition of the fragmentary nature and constancy of such hallucinations experience is strong evidence of epileptogenic rather than psychogenic origin, even where psychical elements have been added with the spread of the irritation from the excitable area to associated areas or to emotionally associated elements. Organisation of the projected experience, the sense of this externality and the mood colouring of the experience itself, is strong evidence of the psychogenic character. In the whole range of psychiatry there are no mental peculiarities more instructive to the understanding of the nature of hallucination than so-called Gulliverian hallucinations. Hallucinations of this type have been discussed most fully in the literature in the lilliputian form, but what we may designate brobdignagian hallucinations also occur, with a different affective tone. Sometimes, as in a case of our own, these two forms alternate in one and the same patient.

The lilliputian hallucination may be generally described as the projection of a world of mannikins varying in size from a few inches to a foot or more.

They are usually gaily coloured and apart from their size perfectly human in all respects. They frequently appear clothed in fantastic garb suggesting the land of Fé—or more exactly the fairy world of our childish imagination. In many cases, as in the above quoted example of the old man with the cataract, they answer to the patient's wishes, and in his imagination he does what he likes with them. The feeling tone which accompanies their appearance is usually described as pleasurable; sometimes the patient will look forward to their appearance as the bright spot in the passing hours. In Obanio's case of veronal poisoning the affective colouring varied with the mood of the patient—her lilliputians were threatening when she was depressed and gay when she was expansive. Bouyer cites an interesting case of lilliputian hallucination and distinguishes such appearances from a true micropsia, which he regards as an epileptic phenomenon. That wider psychological processes are involved even in micropsia is shewn by one of his own cases in which the micropsia was associated with a feeling of largeness.

Where the patient complains of the terror inspired by the hallucinations we usually find that they assume enormous dimensions. Another of Bouyer's cases had the alternation of small and large figures. The former were usually pleasant-coloured and stereoscopic, the latter were large—usually animal in form, grey in colour, and inspired terror. The association of colour with the feeling tone of hallucinations has been dealt with by Christoffel, who, although of the opinion that black and white hallucinations are organic in origin, goes so far along the psychological road as to suggest that the black variety denotes masculinity and fear, and the white, femininity and a pleasurable feeling tone. Either such hallucinatory experiences belong to the category of épileptic aura, in which case they are more likely to be formless or at least fragmentary, or if manifestly not so they must be predominately psychological.

In Mignard's case of oneiric delirium the gigantic figures produced terror.

We must cite more fully our own experiences with the case of a young married woman who started to have a feeling of unreality a few days after the birth of her first and only child. This was associated with the illusory experience of everything appearing to her as very large. Her husband appeared enormous at the bedside, as did the nurses. She felt her surroundings too enormous for her and the feeling produced was one of terror and hopelessness of being left in an unreal world. Since then, she has periods of loss of the sense of reality when things still look enormous, even her hands working at the table seem to her to be a distance away and enormous in size. The mirror image is magnified and horrible in its strangeness. Other persons appear gigantic, while the pigeons in the garden have grown to the size of swans. Sometimes in addition to these illusory experiences she hallucinates patches of purple on her hands—"just like Lady Macbeth," she would add. At other times the purple patches appear anywhere in external space and fill her with loathing and fear. During periods of pleasant feeling-tone she pictures herself

as surrounded by small things and persons, and sometimes she will see herself as a little girl playing with dolls. When these infantile recollections or images appear to her the hallucination of largeness will somehow invade the appearance of the objects amidst which she has been in her fancy playing, and then, if she happened to be playing under a table as was her wont in childhood, the large legs of her father would appear walking round the table, or the skirt of her stepmother would swish by her childish refuge under the table. The appearance of this latter person would evoke the hallucination of the purple patches. It would take us far to deal with the rich detail of this particular case, which illustrates very well the affective colouring of hallucinations and also the alternating quality of these hallucinations from hedoniphoric to nociphoric.

In childhood there are two groups of complexes en rapport with the size of persons seen or imagined. The one corresponds with the fear inspired by the adult and the punishment which infringements of adult prohibitions impose or which the child imagines they have power to impose; and the other, the joyful sense of security obtained by living in a reduced universe. Mignard and Bouyer support this view, and the whole of psychoanalytic experience urges us to the same conclusion. To regress to the infantile level of experience for satisfaction is the prerogative of each one of us, but with the appearance of the hedonic tone of infantile satisfaction we must be prepared to revivify also the infantile sense of guilt and the persons from whom punishment is to be received. Bleuler is of the opinion that two types of hallucinations must be distinguished. One he says "are the result of the false interpretation of dysæsthesia, interpretations resembling those which are at the base of illusions; the others, representations associated with the elements of perceptions, that is to say sensory engrams, and with the relationship with localisation in the external world. Only the latter depend in any intimate way upon conscious tendencies of the patient." We believe, however, that for psychological purposes—particularly for psychopathology—it is unnecessary, nay, almost impossible, to make such separation. The distinction between primary æsthesia and perceptual experience is after all only an abstraction of the psychological laboratory. In cases of definite sensory disturbance it is not unlikely that the misinterpretation stops there, in the sensory apparatus. At a given moment in a state of slackened accommodation one might see the floating corpuscles in our retinal capillories and momentarily assert that we have seen birds, but the return of muscular tone to the ocular apparatus renders the corpuscle invisible. We know exactly how far our experience has been illusory. But the very fact of having thought at all that we had seen a bird is evidence of cortical activity, *i.e.*, of perception, however misguided. In schizophrenia Bleuler says the two types are found fused. Not that they have fused, but the abstraction of the two in these cases is useless, because in such persons the immediate data of sense (or such of these as are noted) are instantly taken into

the psychical system of the patient without reference to their relevance or sensory cohesion, and made to feed the fantasy of the subject. Pfeiffer's case already cited illustrates the ease with which, given affective zest, the retinal patterns are worked up into fantastic images.

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A CLINICAL ANALYSIS OF AN EXTRAPYRAMIDAL SYNDROME; PARALYSIS AGITANS AND POSTENCEPHALITIC PARKINSONISM.

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INTRODUCTION.

The extrapyramidal system is a complex system to lesions of which authors have ascribed different clinical conditions; some of these ascriptions have stood the test of time, others have fallen into disrepute. The commonest affection of the system is paralysis agitans which has for its pathological basis lesions confined mainly to the corpus striatum and its efferent connexions.

In the Croonian lectures of 1925 delivered by S. A. K. Wilson disorders of motility and of muscle tone were considered at great length and with clear understanding. In these lectures paralysis agitans was used as part of his text. As a follow-up plan to that of the author of the Croonian lectures and to substantiate further the dicta laid down by him, in personal touch with him though working independently, I have collected and examined a series of cases of the syndrome from his services at the National Hospital, Queen Square, and at King's College Hospital.

GENERAL SURVEY OF CASES.

Fifty cases were selected, of which 39 were cases of the Parkinsonian syndrome of postencephalitic origin, while 11 belonged to the idiopathic type of the disease. Thirty-four males and 16 females made up the 50. Both sides of the body were affected equally in three cases; the right more than the left in 20 cases, the left more than right in 18 cases, and the right arm and left leg in one case. The right side was alone affected in five cases, and the left in three.

The ages of the postencephalitics varied from nine years to the fifth decade, the majority (26 in all) occurring between the ages of 20 and 40. The fifth and sixth decade was the average age-period of the idiopathic cases.

The 39 patients with postencephalitic Parkinsonism gave an account of an *earlier illness*, diagnosed at the time as encephalitis lethargica in 29 instances, influenza in five, rheumatic fever in two, and appendicitis in one. One patient had had no previous illness.

The *symptoms at the time of the original illness* consisted of somnolence in 26 cases, diplopia in 19, delirium in 11, restlessness in six, headache in five, and giddiness in two.

The *interval* between the original illness and the onset of the Parkinsonian symptoms amounted to four years and four months as a maximum; in 18 cases no interval was remarked. The average worked out at 7.2 months.

The *duration* of the Parkinsonism in the postencephalitics was seven years in the longest instance and three months in the shortest, making an average of two years and two months.

The idiopathic group of eleven cases gave for the longest duration of symptoms six years, for the shortest nine months, and an average 2 years and 11 months.

The *symptoms in order of frequency* characterizing the Parkinsonism of the 50 cases of this series consisted of stiffness in 45 (of which nine belong to the idiopathic group); shakiness in 37 (including ten of the idiopathic group); dribbling in 25 (of which two belonged to the idiopathic type); "weakness" in 24 (of which eight were idiopathic cases); and diplopia in 20 instances (of which four belonged to the idiopathic group). Postencephalitic tic occurred in four cases. Character change was remarked in two cases and delusional formation in one.

GENERAL ATTITUDE.

(1) *Standing*—In eight cases, evenly distributed between the two groups, a normal attitude was assumed.

The other cases demonstrated the usual attitude of flexion, which varied in degree. The head was flexed on the shoulders, the shoulders were stooped, the affected arm bent slightly at the elbow, the arm adducted and the hands in a flexed position. The trunk was bent slightly forward and the legs bent at the knees.

(2) *Sitting.*—The attitude was normal in 16 cases, of which four were idiopathic.

In the other cases the patients did not use the back of the chair, the feet were tucked well underneath, the body was inclined forward and the gaze directed to the floor. In the severe cases the patients, as they sat down, would slightly flex their knees and then fall into the chair; at the same time the feet were moved out. While sitting they would appear very uncomfortable and stiff.

(3) *Expression.*—The expression was unaltered in five cases, of which four were the idiopathic type. The other patients exhibited a slight or a marked change in their facial expression, as indicated by the mask-like fixed facies, the partly open mouth, the greasy skin and the bright eyes. Numerous statements made by the patients commented on this change.

OCULAR CONDITION.

(1) *Accommodation* was good in twelve cases, of which four belonged to idiopathic paralysis agitans. It was fair in eleven cases, of which five were idiopathic; poor in ten cases (two idiopathic), and absent in 17 cases (all postencephalitic).

(2) *Light.*—The reaction of the pupils to light was always as good as, and in most cases better than, the accommodation reaction. It was good in 28

cases, of which ten were idiopathic. It was fair in 17 cases (one idiopathic); poor in four cases and absent in one.

(3) The pupils were unequal in three cases.

(4) *Convergence* was good in 13 cases, which include six cases of the idiopathic variety. In the others convergence was defective in variable degrees; some showed no power of convergence, others converged with one eye and not the other. Good convergence with a rapid swinging out of the eyes immediately after was also seen, and in some instances it was only partially restricted. When one side of the body was affected more than the other as regards the Parkinsonian syndrome it was noted that convergence was defective in the eye of the unaffected side in 14 cases, and in the eye of the affected side in four cases.

(5) Defect in *outward* deviation of the eyes occurred in 17 instances.

(6) *Blepharospasm* was present in 45 cases, nine of which were examples of idiopathic paralysis agitans.

(7) *Weakness of the orbicularis oculi* was found in 33 cases, seven of which were idiopathic.

(8) *Punctuate movements and "blinking."*—Punctuate movements consist of several jerky movements of the eyes on looking to the right or left with the head held steadily in front. By 'blinking' is meant a momentary closure of the lids as the patient looks from one side to the other; a synkinesis or associated movement first described by Wilson in his Croonian lectures.

Punctuate movements were present in 28 cases (three idiopathic) and absent in the remaining 22 cases. In ten of the cases which showed no punctuate movements the rest of the examination of the eyes was normal, but in the remaining twelve there was a defect in respect of accommodation, convergence and light reaction in varying degree. In no instance was the accommodation reaction entirely absent.

'Blinking,' in the sense mentioned above, occurred in 29 cases (three idiopathic) and was absent in the remaining 21. The 'blinking' corrected the punctuate movements in five cases. In the other cases it had no effect.

(9) *Micropsia* was found in two cases, both belonging to the postencephalitic group.

MOUTH AND TONGUE.

At rest, the lips were approximated in 31 cases, of which 11 cases belong to the idiopathic group; in the remaining 19 the mouth was always partially open.

Volitional movements of the mouth were normal in nine cases (four idiopathic). They were reduced in 41 cases; equally on both sides in eleven cases, right side more than left in 16 cases corresponding to the side of the body which was more severely affected, left side more than the right in 14 cases corresponding similarly to the side more affected.

On emotional innervation no variation from the normal was noted in ten cases, of which four were idiopathic. Of the remaining 40 cases the right side was affected more than the left in nine instances and *vice versa* in seven. The side of weakness corresponded to the side of the body affected by the Parkinsonian condition.

The range of movement of the tongue was reduced in 30 cases, of which only two belonged to the idiopathic class. Tremor of the tongue was present in 34 cases, seven of which were idiopathic. Tremor of the lips was present in eight cases, and in two a fine tremor of the cheek muscles.

SPEECH.

Articulation and *phonation* were normal in 21 cases, three being idiopathic. The other 29 patients exhibited little or no modulation to their voice, which was monotone in character. A tendency to stammer was noted in some, with slurring over the words and variation in rate, at times slow and then again very fast. Often the words would come slowly at first and then the speed would increase, with the result that the words would be run together. The monotone character was very noticeable. "It seems as if I was always talking on the same scale." "My voice is not so musical." A tendency to tire was also pronounced, and often a subjective observation. Sometimes the patient could not make himself understood. Palilalia was noted in one instance in the repetition of "No, no, no," or "Yes, yes, yes," etc.

Micrographia was present in 14 cases, of which two were idiopathic. The script was smaller and closer together, and very shaky. In two cases writing could not be performed because of the affection.

MOVEMENTS OF COOPERATION.

Arm-Swinging in Walking.—In two cases only was the swinging of the arms in walking normal. In everyone of the other 48 cases it was defective. This defect consisted in absence of swinging of both arms in 24; absence of the swing of the right arm in seven; absence of the swing of the left arm in eight. It was partially diminished in both in three; partial swing of the right was noted in four, and partial swing of the left in two.

With volitional effort 20 of the patients was able to swing their arms, but this always appeared to be laboured and to have no useful influence on the walking. It did not seem to have any co-operative action. The side more affected showed less excursion of the arm on volition than the other side.

Remarks made by the patients were as follows:—"They won't swing." "I seem to keep my left arm in one position. It seems awkward to swing it." One patient when asked to swing his arms remarked "I can't," and made a very poor attempt. Others said, "It is very difficult to swing the arms." "I forget to swing them."

Sitting to Standing.—In rising from the sitting position the feet are placed well under the centre of gravity and the body bends forwards as the subject

swings up to the standing position. In 32 cases this movement was normal; the feet moved in and the body bent forward. In ten cases there was no movement of the feet, but since they were already placed well under the patients, owing to the attitude of flexion, it was really unnecessary to move them.

Standing to Sitting.—As a rule when one sits down the feet move out. In 23 cases this movement was performed as in the normal. In 27 cases there was no movement of the feet after assuming the sitting position, the feet remaining well under the patient. Of the 23 cases where the feet moved out, in four the feet sprang out as the patient fell into the sitting position. In five cases one foot moved out and not the other, the foot which moved being always that of the side less affected.

ASSOCIATED MOVEMENTS.

The movements of association examined were abduction of the little finger, adduction of the thumb, flexion and extension of the fingers, and pronation and supination of the hand. As a rule these movements of association, when present, were obtained from the affected to the sound side.

In 26 cases in which all the above associated movements were present they occurred from the right to the left side in 13 instances, in all of which the right side was more affected than the left; in 14 cases the associated movements were from left to right, all of which were left-sided cases, with the exception of one which was a right-sided case and showed associated movements from either side.

In nine cases these associated movements were entirely absent though in other respects these nine were identical with the other cases examined in respect of motility and tone.

The reason for the absence could not be ascertained.

In 15 cases the associated movements were present in varying degree. In ten abduction of the little finger in association with abduction of the corresponding finger of the opposite side was present; in seven abduction of the thumb was the associated movement; in five, it consisted of flexion and extension of the fingers; and in nine of supination and pronation of the hand.

The associated movement was from the affected to the sound side in all these cases, with the exception of two where it was from the sound side to the affected. In three cases it occurred from either side, though in each the right side was more affected than the left.

SIMPLE AND COMBINED MOVEMENTS.

(1) Shut the eyes with or without resistance; eyeballs roll up. This combination was present in the 50 cases.

(2) Turn eyes to the side; head turns also. Reduced in six cases, but never absent.

(3) Open mouth against resistance; head extends. Absent in two cases, reduced in one.

(4) Turn eyes up ; forehead wrinkles, head extends. Absence of wrinkling of the forehead in nine cases ; reduced in seven. Head extension present in all cases.

(5) In supine position, flex head on chest ; recti abdominis contract. Present in all cases.

(6) Abduct extended arm at shoulder ; opposite erector spinæ contracts. Present in all cases.

(7) Flex fingers in grasping ; extensors of wrist contract. Present in all cases but reduced in four.

(8) Open closed hand ; extensors of wrist relax ; flexors of wrist contract. Present in all cases.

GENERAL MOTILITY.

The actual *muscle power* in paralysis agitans expressed subjectively and as found by objective examination is decreased in a special manner. The bigger movements, such as flexion and extension at the elbow and movements at the shoulder are proportionately much more forceful than smaller movements carried out by the hand. In those cases where the tone was normal or where tremor was lacking the muscle power tended to be good. In eleven cases no objective decrease in strength could be ascertained by testing the grip, or in abduction and adduction of the fingers, or in movements at the elbow and shoulder, though it must be remarked that some of these cases showed an increase of tone and some tremor. In one of these cases the patient complained of a subjective weakness.

In 39 cases weakness of the limbs was present especially in the movements of the small muscles of the hand. In these cases it was noticed that a position could be maintained against strong resistance for some time. The static strength was good but when a movement was attempted against resistance weakness was observed. The weakness was often put down to the tremor of the patient. " I feel stronger in the right hand as this one (left) is so shaky." " It is not weakness. It is really the shaking of it." Often the weakness was expressed as fatigability. "My left hand tires more quickly than my right." Sometimes the patient could not define the weakness. " I don't know whether it is actually weak. I don't feel to have the strength." " My hand seems peculiar. It does not act so well as it ought to." In other instances the weakness was expressed as due to the stiffness. " My hands feel stiff, not particularly weak." " My hands don't feel weak. They are stiff." Sometimes the weakness was the result of the slowness of movement. " I can't say they are weak. It is the slow movement."

The *range of movement* was limited on the affected side in 44 cases. This limitation was much more pronounced in smaller movements than in bigger ones. Abduction of the fingers gave a greater percentage of decrease than any other movement. " I cannot do fine movements with my left hand. It is from the wrist down and in my legs from my ankles down." Next in order of

frequency of limitation was approximation of thumb to little finger. The big movements such as flexion and extension at the elbow were very infrequently affected, this defect occurring in 18 cases. "I am able to do bigger movements better than smaller ones." "I can box or do anything active." "I can take a longer step better than a short one." "I can run better than I can walk."

Freedom of movement was examined by questioning the patients as to their ability to shave, feed themselves, cut their food and perform the ordinary routine things of life. It was noticed that they made very infrequent movements and that their movements of defence were slow in beginning and retarded in speed.

In 41 cases freedom of movement was reduced, the patient often favouring the unaffected side to do his routine, such as using the left hand instead of the right to shave himself. Poverty, slowness and lack of freedom were attributed by some to shakiness. "I am frightened to get hold of anything because they shake so." In other instances the alteration was explained as the result of the increase of tone. "My hand seems to become fixed when I use it." "I am able to carry out very quick movements better than slow ones." "I can run up a hill more easily than I can walk up." "If I get up with a jerk I can get up."

Fluctuation of strength, range, freedom, tremor and tone was volunteered as a personal observation in 24 instances. "Sometimes I am not so bad as others. I don't shake." "At times I get into a slow way. Sometimes I am quite agile." Several patients had the feeling that they were better in the morning; at other times it was just a daily variation. During warm weather a few patients felt better. Four patients expressed a feeling of ease of movement towards evening.

Restlessness.—In 18 cases a feeling of restlessness was pronounced even though the whole stance of the patients suggested immobility. When washing and drying themselves they had to keep on the move. They became restless after reading a few moments. They simply had to keep "on the go." A patient's wife expressed this very well: "He drives me mad at home—up and down all the time." Another patient said, "I can't sit still. My wife is always grumbling about it."

Tone.—Increase of tone was very common, occurring in 43 cases; ten showed a slight increase of tone and 33 a great increase. This hypertonia was tested by passive extension and flexion of the arm at the elbow. In the movements of the smaller joints the alteration of tone was less easily recognised.

In seven cases there was no perceptible alteration, though three of these patients showed a decrease in muscular power; three, a limitation in freedom of movement; three, a defect in range. Six exhibited an obvious tremor.

TREMOR.

In 45 cases tremor was present, consisting either of an action-tremor or a tremor at rest. It varied considerably in range, speed, and localization.

Action-tremor, or tremor on movement, was observed in 15 cases. When any movement with the affected limb was made the tremor would be increased, as in the act of shaving or of cutting food.

Tremor at rest was present in three cases. Both types of tremor was present in 27 cases ; action-tremor was more pronounced in 18 and rest tremor more active in nine. Rate and range varied within wide limits from a very slow, wide excursion tremor to a fine, quick tremor. In 14 cases the tremor could be said to be wide in range and slow in rate ; in the other 21 it was fine and rapid. Often the tremor was fine at rest and would become very coarse and irregular with volitional movement. Frequently the tremor at rest was observed to decrease at the commencement of movement and to become accentuated as the movement came to termination. An effort of any description, such as forceful closing of the opposite hand, often greatly increased the tremor.

The tremor could be controlled in many instances by slightly different ways, *e.g.*, by pressing the back of the hand on the chest, when only the thumb which was free showed the tremor, or by holding the palmar surface of the hand flat on the chest, or by gripping the hand with the other. On supporting the arm the tremor was greatly reduced in a few cases. In one case any change of posture of the limb would stop the tremor momentarily, and then it would begin again with the limb in the new position. Gentle support of the fingers would often check it. Under emotional stimulation it increased. Concentration on the tremor often caused a cessation of it for a brief moment.

The tremor was chiefly confined to the arms, for it was observed in 45 cases in some part of the arm, viz., 21 cases in arm, hand and fingers, and 24 in hand and fingers. The legs were less often affected, this occurring in 15 instances. In two cases the cheeks showed a fine tremor.

The idiopathic cases of paralysis agitans all exhibited increase of tone, weakness, limitation of range and poverty of movement, and tremor. The tremor was variable in character, action-tremor being more marked in five cases than tremor at rest, and in six tremor was reduced by any voluntary movement.

Of the five cases in which tremor was lacking both at rest and on movement, strength was reduced in the grip in three cases, range of movement reduced in three, freedom of movement altered in three, and hypertonia found in four.

COMPARISON OF IDIOPATHIC AND POSTENCEPHALITIC CASES.

Although the neurologist meets with cases of Parkinsonism in young people from whom no history of encephalitis, or even of influenza, can be obtained, and legitimately assigns these to an unrecognised encephalitic condition, I have taken as idiopathic paralysis agitans the eleven of this series largely because of the ages of the patients and the extremely slow progression of the symptoms. In none, needless to say, was a history of encephalitis forthcoming.

A comparison of the symptomatology of the two classes is not without interest, especially in view of the contention of some writers that they are not in reality distinguishable. Taking first the symptoms complained of, in order of frequency, I have worked out the percentages for the two classes and embodied them in the accompanying table.

TABLE I.

	Postencephalitic group.	Idiopathic group.
Stiffness	92	81
Shakiness	69	91
Dribbling	59	18
Weakness	41	72
Diplopia	41	36

Making allowance for the fact that the numbers of the idiopathic group are but one-third of the other, I think nevertheless that the distinctions are definite enough to be of value. Thus shakiness or tremor occurs with considerably greater frequency among the idiopathics than among the postencephalitics, while stiffness occurs less often. These figures bear out the contention of most clinicians that the idiopathic class usually shows more tremor and the postencephalitic class more rigidity. Again, sialorrhœa is much more noticeable in the latter group than in the former. 'Weakness,' on the contrary, characterises the idiopathic group as a subjective complaint to a greater extent than the postencephalitic. In respect of double vision there is no material difference.

Proceeding next to the results of objective examination, I have collected them statistically in the adjoining Table (figures expressed in percentages).

TABLE II.

	Postencephalitic group.	Idiopathic group.
Accommodation, poor or lost ...	64	18
Convergence, poor or lost	81	54
Pupil reaction to light, poor or lost	13	0
Blepharospasm	92	82
Orbicularis oculi, weakness... ...	67	63
'Blinking' sign	67	27
Tongue movements, poor or weak	72	18
Tongue tremor	69	63

From this comparison it will be noted that blepharospasm is the commonest of all the objective changes in the class of ocular, facial, and tongue movements, and that its percentage is identical with that of the rigidity given in Table I. Next in frequency comes defect or loss of convergence, which is considerably more common among the postencephalitics than among the idiopathics, and the same is true of accommodation. Weakness in power and poorness of range of tongue movements are similarly frequent in the case of the postencephalitic variety, being no less than four times as common as in the case of the idiopathic group. Tongue tremor, on the other hand, is approximately equal in frequency in the two.

In fact, the general conclusion to be drawn from the figures given in Table II is that in respect of every one of the objective signs there enumerated its occurrence is more common in the cases of Parkinsonism following epidemic encephalitis than in the idiopathic class. Only as regards tongue tremor, weakness of the orbicularis oculi, and blepharospasm do the two approach each other.

As for the general symptomatological condition in regard to rigidity, hypertonus, muscle power, and also in respect of the special motor tests which have been employed, no material difference between the two groups has been established.

GENERAL CONCLUSIONS.

My clinical analysis of 50 cases of the Parkinsonian syndrome enables me to draw several conclusions which corroborate the observations made by S. A. K. Wilson in his Croonian lectures and substantiate the important deductions which he has there drawn.

In testing the synergic action of muscle groups in Parkinsonism, I have failed to find any departure from normal, physiological, law. In all cases, without exception, there is no interference with the appropriate interaction of protagonist, antagonist, and synergist.

So far from associated movements being absent in the Parkinsonian state, the reverse is the case. Not only are normally combined movements carried out (with few exceptions) just as in health; some associated movements are present which are not seen in the normal individual. The views of striatal function based on the argument that associated movements are lost in Parkinsonian states are vitiated at the outset. For example, the contention that the feet do not move when the patient rises to a standing from a sitting position is based on erroneous observation, as Wilson showed and as I can definitely substantiate.

Absence of arm-swinging in walking is the one 'associated movement' (really a movement of co-operation) which is nearly always absent (48 cases out of 50). Yet it is clear from my investigation that the movement is defective or absent largely owing to concomitant rigidity, and that in many cases the arms can as a fact be moved in walking when the attention is directed to them. But as a rule the patient does not swing the arms because it implies an effort and this effort he finds is not essential for his walking; therefore he omits it.

VENOUS ANGIOMA OF THE CEREBRUM.

REPORT OF A CASE WITH NECROPSY.

By C. WORSTER-DROUGHT and
W. E. CARNEGIE DICKSON.*

INTRODUCTION.

Angiomata are among the rarest of brain tumours. The majority of the cases recorded are examples of plexiform angiomata occurring in connexion with the cerebral arteries. Thus, D'Arcy Power[1] in 1888 reported a case of arterial angioma involving the angular gyrus, and Drysdale,[2] in 1904, recorded two cases of similar angiomata connected with the anterior and middle cerebral arteries: further cases have been published by Kalisher, Emanuel, Bergmann-Oppenheim[3] and Simmonds.[4] A few cases of cavernous angiomata have also been described by Bruns, Oliver, Stupple and Bielschowsky. La Villette collected 18 cases of both types occurring in various situations. These angiomata are most probably of congenital origin and are of slow growth; usually they produce only general symptoms and in some cases epilepsy had occurred. Cerebral angiomata consisting entirely of veins are apparently even rarer than either form of arterial angioma. In 1922, one of us (C. W.-D.) with Sir Charles Ballance[5] recorded a case of extensive venous angioma of the cerebral cortex associated with mild hemiplegia and epilepsy of Jacksonian type. The nature of the cerebral lesion was revealed at operation, from which the patient made a good recovery (1921). Five years after operation (1926) the patient was admitted to the Albert Dock Hospital and there died as the result of hæmorrhage from the angioma. Owing to the kindness of Dr. W. Bonner-Morgan in notifying us, we were enabled to examine the brain post-mortem.

CLINICAL DESCRIPTION OF CASE.

A. J. A., age 31, was first seen by one of us (C. W.-D.) in August, 1920. He complained of "fits" and slight weakness of the left arm and left leg.

History of Illness: During 1916, while serving in the Navy, he began to experience occasional attacks of "tingling" on the left side of the face. After four months each attack was followed by transient loss of consciousness. This in turn shortly afterwards was followed by temporary weakness in the left arm and leg. The attacks recurred at intervals of about four weeks until, in March, 1917, he was invalided from the Navy as a case of ? disseminated sclerosis. The attacks continued to occur at irregular intervals up to the time of his coming under observation in 1920.

There was no history of previous illnesses or trauma and no family history of epilepsy or other nervous disorder.

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Condition on examination (*August*, 1920).—(1) *Symptoms:* The "fits" occur at intervals varying from a few weeks to a few days and each attack is usually preceded by an aura of nausea, vertigo, and tingling on the left side of the tongue and face; this is followed by loss of consciousness. Occasionally he realises that his left leg is twitching before he loses consciousness. The actual fit lasts only a few minutes, but on regaining consciousness he finds that the left arm and leg are powerless and numb and that he has difficulty in speaking; this state continues for about three hours following the fit and then passes off. During the attack his tongue has rarely been bitten and incontinence has not occurred. Apart from the attacks, he complains of some degree of weakness in the left arm and leg and of occasional frontal headache. There is no vomiting or failure of vision.

(2) *Physical Signs:* Pupils equal and react normally to light and accommodation; optic discs normal; no nystagmus; ocular muscles normal; all other cranial nerves, including face, tongue and ears, normal. No abnormality of sensation detected. All movements present in left arm, but left hand-grip distinctly weaker than right. No wasting, no incoordination of arms and no intention tremor. All left arm jerks brisker than those of the right. Abdominal reflexes fairly brisk, but right greater than left. All voluntary movements of left leg are performed, but there is slight spasticity. Knee and ankle-jerks brisk, left greater than right. No ankle clonus; plantar reflexes, right flexor, left indefinite (flexor response invariably on stimulation towards inner side, and occasionally extensor on proceeding towards outer side of sole).

Heart normal; pulse 76; blood-pressure 130 mm. systolic; sphincters normal; urine, no albumen, sugar or casts.

Diagnosis: A diagnosis of "Lesion (? nature) of Rolandic area of right cerebral cortex, with Jacksonian epilepsy" was made.

The blood yielded a negative Wassermann reaction; the cerebrospinal fluid showed no lymphocytosis, and both globulin and Wassermann reactions were negative. *X*-ray examination showed no abnormality of the skull.

Subsequent Progress of Case: From August, 1920, the patient was taking 15 grains of sodium bromide daily. Up till April, 1921 the attacks averaged only one or two per 14 days, several consisting simply of numbness and twitching of the left arm and leg, without loss of consciousness. Throughout this period there was no definite change in the physical signs. After April, 1921, however, the attacks increased in frequency and severity, averaging three or four a week, about one in three being accompanied by loss of consciousness. As the patient was deteriorating, operation was decided upon. This was performed by Sir Charles Ballance on November 19th, 1921.

Operations: Under intratracheal ether, the lower two-thirds of the right Rolandic area was exposed. The dura, which was tense, dark and thin, was opened, and on being reflected, the whole of the cortical area exposed was found to be occupied by enormous veins, the arachnoid being stretched over them; some of these veins were of the diameter almost of the little finger. The walls of the veins appeared very thin and at several points were adherent to the dura; during the reflection of the latter, rupture occurred at some of the sites of adhesion, the hæmorrhage being controlled with gauze plugs (five in all). Owing to their very large size and to the fact that all disappeared beneath the margins of the bone bounding the opening, no attempt could be made at separation or removal of these veins; also, it was seen that the venous angioma extended far beyond the limits of the craniectomy opening in the skull. The patient stood the operation extremely well and was conscious within one-and-a-half hours of its termination.

A week later, a further operation was performed, the flap being turned down, the cortical surface cleared of blood clot and the gauze plugs removed, with the exception of a portion of one plug, which was firmly embedded in clot and young granulation tissue (Fig. 1). The veins were not thrombosed and appeared somewhat less prominent than

Fig. 1. Outer aspect of right hemisphere, showing the enormously dilated veins and thickened dura.

a week previously. A celluloid plate was cut to fit the opening in the bone and fixed in position with small tacks.

The patient made an excellent recovery from the effects of both operations, only complaining of occasional headache.

Later history of Case : For the first six months following operation, no definite epileptic seizures occurred ; only on four occasions did the patient experience slight numbness of the left arm and hand, passing to the left side of the face. The physical signs remained practically as before, excepting that the left arm and leg appeared stronger. During the next eighteen months only four seizures with loss of consciousness occurred, the minor attacks of numbness and tingling down the left side being experienced once or twice in four weeks.

Following the above observations, the patient was lost sight of until May 9th, 1926, when he was admitted to the Albert Dock Hospital with a complaint of intense headache and fits. The note of his condition on admission states : " Pupils react normally, all left-sided reflexes greatly exaggerated as compared with right, with some spasticity and loss of muscular power. Heart, lungs and abdomen normal ; pulse 80, respiration 22". The patient continued to complain of intense headache and finally developed coma of increasing depth, dying on May 19th, the tenth day of admission. During the 10 days in hospital the patient ran an intermittent temperature, varying from 97.5° F. in the morning to 100° F. at night, with a pulse-rate varying from 60 to 90.

NECROPSY.

Externally, a large operation scar on the right side of the head ; a gap 3 in. by 2 in. in the right parietal region of the skull filled with a celluloid plate. On removal of this and framing the gap the dura was found much thickened and adherent. Under the celluloid plate many large and delated veins were apparent. Over the venous tumour also the dura was much thickened and adherent, rendering separation and removal of the brain most difficult. The brain substance under the venous mass was much softened, the area of softening being most pronounced between the hemispheres. Death appeared to have resulted from subarachnoid hæmorrhage occurring from the angioma. The whole surface of the brain was hæmorrhagic and appeared unduly soft. Nothing of note was found elsewhere in the body.

PATHOLOGICAL DESCRIPTION OF CASE.

The specimen consisted of an adult brain, showing considerable general flattening of its convolutions, more especially those of the right occipital lobe. The nature, extent, and distribution of the lesion may best be described by reference to the two accompanying illustrations (Figs. 1 and 2). There was surface meningeal hæmorrhage, especially over the base, particularly in the interpeduncular space, inner surfaces of the temporal poles, and along both Sylvian fissures and lower aspects of the frontal lobes. Over the central two-fourths of the outer and upper part of the external surface of the right hemisphere there was a large mass of enormously dilated and tortuous surface veins mingled with thickened and adherent dura, in the upper part of which was embedded the remains of a gauze swab (Fig. 1). Some of the large veins were continued over the vertex, and, as shown in the vertical coronal section (Fig. 2), were numerous also on the inner aspect of the hemisphere, where the brain-tissue was extensively softened and destroyed. The largest of these veins (in their contracted post-mortem condition) were 7 or 8 mm. in diameter, and numerous smaller veins were also present in the sulci in the neighbourhood of the larger veins.

COMMENT.

Features in the case worthy of note are :—

(1) The sensory aura beginning in the face.

(2) The absence of any demonstrable change in cutaneous sensibility.

(3) The absence of fundus changes.

(4) The extremely large size of the veins forming the angioma.

(5) The improvement following operation—presumably due to relief of local pressure.

(6) Death as the result of hæmorrhage from the angioma.

By a curious coincidence, a somewhat similar case occurred in the same hospital in the same year (1921). This was a cerebral venous angioma consisting of vessels of much smaller calibre and occurring in a younger subject. The case was recorded by H. Campbell and C. A. Ballance.[6] D. M. Greig[7] also reported a case associated with hemiplegia, epilepsy and adenoma sebaceum in a youth, age 18. Fatal hæmorrhage occurred in a case of cavernous angioma of the left cerebellar peduncle described by Wergman.

As these venous angiomata are almost certainly congenital, it is remarkable that the increase in size to which all angiomata are liable was insufficient to produce symptoms in our case until the age of 27. In Campbell and Ballance's case, symptoms began at the age of 13 and in Greig's case, at 3 years. All three cases show the following features in common :—

(1) First symptom, epilepsy, with relatively slow development of hemiplegia.

(2) The presence of epileptic attacks of the Jacksonian type ; preceded by a definite aura, and,

(3) The absence of changes in the fundus oculi.

We desire to express our indebtedness to Dr. W. Bonner-Morgan and to the Staff of the Albert Dock Hospital for their courtesy in granting us every facility for the pathological examination of the case.

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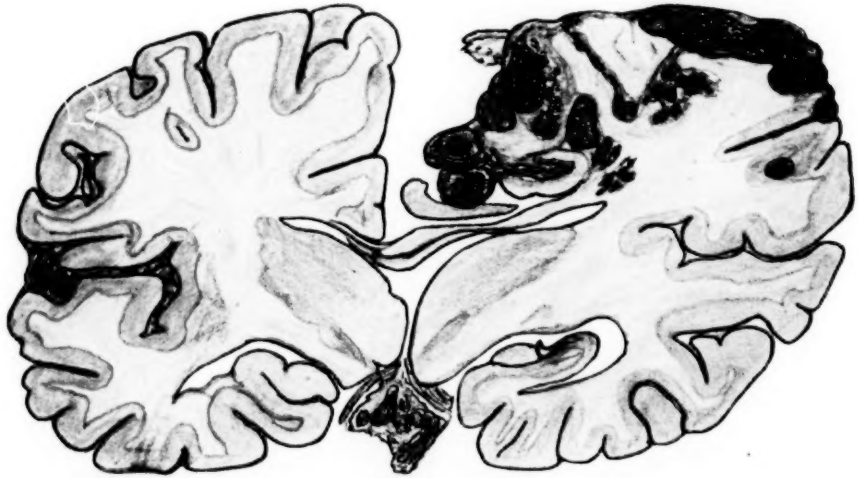

Fig. 2. Vertical coronal section, showing distribution of the veins on inner aspect of right hemisphere.

UNIV. OF MICH.

ON PALILALIA.

By MACDONALD CRITCHLEY, London.

Among the more unusual disorders of speech the phenomenon of palilalia occupies, in spite of its great interest, an undeservedly meagre place in the neurological literature of this country. One understands by this term a variety of reiteration, whereby the patient repeats many times a word, phrase or sentence which he has just spoken. In addition the speech tends to be uttered more and more quickly and with less distinctness, so that the latter part may be almost inaudible. The patient is fully aware of his defect but cannot as a rule control it.

Palilalia (from $\pi\alpha\lambda\iota\nu$, again, and $\lambda\alpha\lambda\iota\alpha$, speech) was first described as such by Souques[18] in 1908, although it is possible that the phenomenon spoken of earlier by Brissaud[3] as "auto-echolalia" was of the same nature.* Since that date a score or so of cases have been recorded, occurring in two main types of disorder—in postencephalitic Parkinsonism and in cerebrovascular disease. In this present paper, seven more cases are added to the literature, together with anatomical verification in one instance.

PERSONAL CASES.

A. The Postencephalitic Group.

Case 1. R.G., male, age 40, was admitted to the National Hospital, Queen Square, under the care of Dr. Kinnier Wilson, in March, 1927. In April, 1925, he had sustained his acute attack of epidemic encephalitis, and a few weeks after the febrile phase the symptoms of Parkinsonism gradually supervened. In September 1926, the speech disorder first appeared, with some suddenness. Whilst at the cinema he found himself reading aloud *over and over again* the captions of the films; his wife, getting annoyed, dug him in the ribs and said "For God's sake, Bob, shut up," but all the patient could reply was "I can't shut up—I can't shut up—I can't shut up—" This involuntary repetition of phrases persisted up to the time of his admission. When he was seen in hospital his physical state was one of Parkinsonism of moderate degree. There were no psychical changes, the patient in fact being interested in and even amused at his own defect.

His palilalia was entirely involuntary, and occurred during spontaneous speech as well as in replying to questions; it occurred equally during emotional utterances (swearing, etc.) and during propositionizing. The number of repetitions varied somewhat, being usually four to eight, but even when no words were audible his lips would be seen moving as if in silent utterance.

Case 2. J. J., male, age 18, sustained an attack of acute encephalitis in August 1925. Since then he has become lethargic, and untidy in his habits. On attending the out-patient department of the National Hospital (Dr. Walshe) eighteen months later, he presented the characteristics of advanced Parkinsonism. He was kept under regular observation,

* ". . . leurs réponses sont souvent de simples monosyllables ou de petits membres de phrase qu'ils répètent plusieurs fois de suite. On pourrait nommer *auto-écholalie* ce singulier phénomène."

his physical state remaining very much the same. On May 3, 1927, he was observed to show palilalia when talking. The patient himself was conscious of the defect and stated that it had been present for the past two weeks only. The palilalia was not marked, was inconstant, and was not present for any phrases other than monosyllables.

CASE 3. W. D., male, age 33, attended the out-patient department of the National Hospital with postencephalitic Parkinsonism. His acute attack had occurred three and a half years previously. Both the patient himself and his family had noticed an increasing indistinctness in his speech, and also that he would frequently repeat several times a word or part of a sentence. This feature was not constant, being most marked for short phrases and monosyllables.

CASE 4. D. B., age 43, out-patient under the care of Dr. Adie, Queen Square, sustained an attack of acute encephalitis in August 1925, which was gradually followed by Parkinsonism. "Speech difficulty" had been present for one year. On examination he revealed the characteristics of an advanced case of postencephalitic Parkinsonism. In addition he had a very gross palilalia which was constantly present during conversation. His voice was low and monotonous and became almost unintelligible towards the end of a sentence. The patient exhibited a definite difficulty in starting to speak—a difficulty of which he was very conscious. There were no repetitions when he counted aloud, and none when he swore in anger. Owing to his illiteracy reading tests could not be made satisfactorily.

These four cases illustrate the association of palilalia with postencephalitic syndromes. They may be compared with other such cases quoted by Graziano, Marie and Lévy,[12] Sterling,[19] Volpi-Ghirarderi and Tarozzi,[25] Agostini,[1] Vivaldo,[24] Rordorf and Cacchiararo,[17] Thurzo and Katona,[21] Giraud and Guibal.[9] In the first and fourth cases the palilalia was constantly present, but in the other two it varied in degree from day to day and also during conversation, only certain phrases and words being repeated.

B. The Cerebral Arteriopathic Group.

CASE 5. J. J. E., male, age 80, was first seen by me on March 1, 1927, at St. Marylebone Hospital, where he had been admitted some months previously for "senile decay, with epithelioma of mouth." He was a thin, cachectic old man, slow in cerebration and somewhat demented. His memory was grossly impaired and he was disoriented in time: his expression was wooden and "mask-like," with the mouth gaping in a vacuous fashion. There was a well-marked arcus senilis; his radials and temporals were hard and tortuous; B.P. 145/90. He showed some emotional instability, and laughed easily without adequate provocation. His pupils were small, equal and sluggish in their reactions; the eye movements were full but slow. Facial apraxia was evidenced by inability to protrude the tongue on command, although it could be done when not required. The limbs were rigid, especially proximally, a condition which varied somewhat in intensity according to the amount of passive force used in manipulating them. There was no muscular weakness; some tremor was present in the hands. The tendon jerks were brisk and the plantar responses were flexor. The patient was doubly incontinent.

Throughout the examination he betrayed an intense motor restlessness; he was continually fingering the lapel of my coat, or tugging at his bedclothes. The nurses testified to his agitation, and complained that he was continually "in and out of bed."

His speech was slow, indistinct and dysarthric, and there was definite palilalia. In reply to my greeting he said "Good morning, good morning, good morning . . ." and when questioned concerning his health, replied "pretty well, pretty well, pretty well."

The patient grew progressively weaker and finally died on May 9. An autopsy was obtained and the brain given me for examination.

The cerebrum as a whole was shrunken; there was an excess of subarachnoid fluid over the convolutions. The meninges were thick and milky but stripped easily. The gyri were somewhat atrophic, and there was some broadening of the sulci. A moderate degree of arteriosclerosis was present but was almost entirely limited to the basilar and posterior cerebral vessels; the other arteries were comparatively healthy. The total brain weight was 1,240 gm. (left hemisphere, 550 gm.; right hemisphere, 525 gm.; pons, midbrain and cerebellum, 165 gm.).

On section, the basal ganglia were seen to exhibit an *état criblé* in moderate degree; none of the lacunæ attained unusual dimensions: the cortical grey matter was not narrowed, but the central nuclei appeared shrunken, and were compressed by a marked dilatation of the lateral ventricles.

A small focus of old softening lay in the middle of the right external capsule; a second larger area was present in the left lenticular nucleus, close to, but not invading, the genu of the internal capsule. This softening had burst downwards and medially, so as to communicate with the ventricle (*see* Fig. 1). A third, very small focus, was seen in the right half of the upper pons, near the middle line.

No pathological change was detected in the cerebellum or midbrain, or in the corpus callosum.

CASE 6. C. O., male, age 60, was first seen by me at St. Pancras Hospital on March 2, 1927. His was a typical, advanced case of pseudobulbar palsy (spontaneous laughter and crying, facial overaction during movement with fixity during repose; bilateral rigidity and weakness of limbs, dysarthria, double Babinski responses). His blood pressure was 175/115, and his radials were grossly hardened and tortuous. His mentality was dull, cerebration was slow, and his memory obviously impaired. The speech was dysarthric and in addition was characterised by palilalia.

CASE 7. A. B., female, age 40, was admitted to the National Hospital, under the care of Dr. Kinnier Wilson. Her husband gave a story of two and a half years slow and progressive mental deterioration and emotional instability.

Her expression was immobile, her eyes staring; all her voluntary movements were slow and somewhat weak. There was rigidity in all four extremities. She found difficulty in swallowing solid foodstuffs. Some spontaneous laughter was noticed. The radial arteries were not diseased, but the retinæ showed the characteristics of well-marked arteriosclerosis with a superimposed retinitis. Blood pressure 260/160.

Speech was high-pitched, monotonous and breathless; the words were not articulated distinctly and there was a slight superadded nasal element. The patient showed palilalia at times, particularly for monosyllables; phrases and sentences were rarely repeated.

Cases 5, 6 and 7 were obviously instances of diffuse vascular disease of the brain, characterised by many of the manifestations of the pseudobulbar syndrome. The presence of palilalia is on a par with that recorded by Trénel and Crinon,[22] Dupré and Le Savoureux,[5] Foix and Schulmann,[7] Alexander, and Foix and Chavany.[6] Souques' original case concerned a woman of 59, whose speech disorder had followed a sudden left hemiplegia. There was a definite mental enfeeblement but no manifestations of pseudobulbar paralysis.

DIFFERENTIAL DIAGNOSIS.

There should be no real difficulty in accurately diagnosing palilalia if the essential features of the phenomenon—self-repetition, acceleration of speech and increasing inaudibility—are kept in mind.

Confusion is, however, conceivable with such conditions as *reiterative aphasia with recurring utterance*, and with certain cases of *stammering*. The explosiveness of the latter defect is, however, unlike palilalia, and the fact that the repetition is one of syllables rather than of words or phrases should be a clear differential point.

Palilogia is the term sometimes applied to that form of rhetoric whereby a word or sentence is deliberately repeated for the purpose of emphasis, or as a subconscious act of mental irritation or peevishness; here again confusion is scarcely possible. In cases of *verbal perseveration*, words or phrases may be repeated, but in this case it is the *same* word or phrase which is repeated, as though the original idea was persisting for an undue length of time in the patient's mind to the exclusion of fresh incoming ideas. The persistence of the same reply to different questions at once distinguishes verbal perseveration from palilalia. In *echolalia* the patient repeats the statements or questions put to him, with or without a change of pronoun. There is no attempt on the patient's part at mental co-operation with the interlocutor. As pointed out by Brissaud, palilalia is really an *auto*-echolalia.

Some psychotics—especially cases of dementia præcox—may repeat the same sentence over and over again *ad nauseam:* such a phenomenon, spoken of by alienists as *verbigeration*, is an instance of verbal stereotypy. With such cases there is usually a wealth of accompanying gesture so that the speech takes on the appearance of a rhetorical declamation; in other cases again the words are intoned in an affected litanical or ritualistic manner.

THE CLINICAL ASPECT.

Palilalia entails the involuntary repetition two or more times of a word, phrase or sentence just uttered. It occurs equally during spontaneous speech and in reply to questions. With succeeding repetitions the words tend to be clipped and abrupt, the voice to become lower and less audible, while the rate of speaking accelerates. The normal articulation may, however, be preserved.

A point of great interest and importance lies in the fact that the palilalia (as with stammering) disappears during pre-formed speech automatisms, as for instance, when the patient reads aloud, sings or recites. Thus if the patient is ordered to repeat from memory some well-known speech pattern, such as the Lord's Prayer, the alphabet or a nursery rhyme, there is no trace of repetition. Palilalia may occur not only during so-called intellectual speech but also in emotional, interjectional speech; thus oaths and exclamations may also show the characteristic palilalic reiterations. On the other hand, the palilalia may be completely absent from emotional utterances, as in Case 4.

Palilalia may be constant in appearance, but frequently it varies in intensity from time to time. Particularly is this true of the postencephalitic group (*vide* Cases 2 and 3). Sterling emphasizes the fact that when variability exists it seems to depend not so much upon the kaleidoscope of the emotions as upon the physical state, for when his patients felt better the palilalia was

less, and conversely it was more evident when the tremor, rigidity and helplessness were greater. Agostini has noted that the speech disorder is always intensified when the patient is taken off hyoscine treatment. Similarly in the arteriopathic group the palilalia may abate when the patients' physical state improves (*vide* Case 6). While it appears then that the influence of the emotions plays a minor part, it is equally certain that the speech disorder can, in some measure, be checked for a time when the patient's attention is focussed upon it, and when a strong effort of will is exercised.

The number of repetitions varies with individual cases, and with the length of the phrase repeated ; in general, the shorter the phrase the greater the number of repetitions. Sometimes as many as twenty-one reiterations may be heard, whilst the lips are seen to continue forming additional but inaudible repetitions (*palilalie aphone*). The palilalia is particularly noticeable when the patient's utterances are confined to one sentence. Where his replies or spontaneous diction comprises two or more sentences, usually—though not invariably—it is the last sentence alone which is repeated.

In all the recorded cases, in which particular search has been made, there has never been found any evidence of writing-repetitions (paligraphia) or of repetitions of movements executed by the patient himself (palikinesia). In a few instances, particularly in the pseudobulbar cases, there has been a hint of echolalia (in that the patient seemed to imitate and repeat several times what was said to him). Pick[15] indeed classified palilalia into two groups, according as echolalia coexisted or not. This feature is never a marked or a constant one, however. Very rarely the patient tends to imitate two or three times the actions of the bystanders (echopraxia). Thus Foix and Schulmann have noticed a suggestion of this phenomenon in the patient's handshake.

With regard to the concomitant manifestations of palilalia, it is important to note one negative and one positive feature ; firstly, the absence of aphasia in the accepted sense of the word. Thus there is no difficulty in the comprehension of spoken or written speech ; internal speech is intact, the power of propositionizing is retained, and the patient may have complete insight into the nature of his disorder. Secondly, the frequency with which certain psychical disorders coexist, viz., emotivity and intellectual impairment. The emotivity is evidenced both in the encephalitic and arteriopathic cases by rapid vacillations in the emotional content and particularly in its physical affect—laughter or tears. Intellectual loss has been present in most of the recorded cases ; in the pseudobulbar group there is usually a global dementia with concentric narrowing of the mental field. In the encephalitic group, there too has been noted a slowing-up of cerebration and a restricted mental horizon—so-called ' mental viscosity ' or ' bradyphrenia.'

The physical accompaniments always take the form—in the post-encephalitic instances—of the Parkinsonian syndrome. Other features may also be present, such as oculogyric crises or respiratory disorders, but such

phenomena are always superimposed upon a state of Parkinsonism, when palilalia coexists. In the case of cerebrovascular disease, the commonest associated feature is the pseudobulbar syndrome ; a history of multiple strokes may or may not be obtained ; there is sometimes an associated unilateral or bilateral weakness of the extremities ; the earlier instances of palilalia occurred more particularly in pseudobulbars with predominant left-sided hemiplegia, and it was at one time supposed that palilalia was evidence of uncompensated activity of the left brain. The record of subsequent cases (Foix and Schulmann and others) and the advent of the postencephalitic cases, disproved the theory and at the same time demonstrated that palilalia might occur with predominant right-sided weakness.

LOCALISATION.

Although, as mentioned above, the majority of the recorded cases have occurred either in pseudobulbars or in postencephalitics, it must be pointed out that it has also been met with in Alzheimer's disease (Frey[8]), the relationship of which to cerebral arteriopathy is still not beyond suspicion. Palilalia has also been described in the 'idiopathic' variety of paralysis agitans (Pick, Maillard[10]), arising independently of vascular disease or epidemic encephalitis. Foix and Chavany have, moreover, recorded a variety of palilalia (*palilalie syllabique*) in a man of 72, whose brain shewed disseminated foci of sclerosis throughout the cerebrum, which the authors suggest were ischæmic in origin. This case, however, can scarcely be included within the present category as the speech disorders differed in several minor though important particulars from the classical description.

Owing to the paucity of pathological evidence, the anatomical basis of the disorder has been largely speculative. Furthermore, the very nature of the disorders in which palilalia is encountered are those in which we expect to find multiple or diffuse pathological lesions. Marie and Lévy indeed went as far as to state that palilalia of necessity indicated a diffuse pathological process.

Some of the writers upon this subject have been inclined to look to the basal ganglia for the site of the causative lesion. Following the views of Oppenheim and the Vogts, who attributed to the anterior putamen the functions of a speech regulator, Pick and Sterling have postulated lesions in this situation. Marie and Lévy, and also Sterling in his later paper, are less definite in their statements and suggest that palilalia is an expression of disease in the central grey nuclei and subthalamic centres.

Autopsy evidence has been forthcoming in but few cases, viz., in Trénel and Crinon's case, in three of Pick's, and in Case 5 of the present series.

In 1912 Trénel and Crinon showed before the Société de Neurologie a woman, age 51, with a pseudobulbar syndrome and palilalia. There was a tendency, moreover, towards echopraxia. Two years later at a meeting of the same Society, in which a similar case was shown, Trénel[23] referred briefly to

his patient who had since died. There had been found post-mortem a sclerosis strictly limited to one cerebellar hemisphere ; in addition, the corpus callosum was definitely diminished in volume and contained numerous scattered *foyers* of degeneration.

Two out of Pick's three cases were examples of cerebral vascular lesions, in subjects aged 78 and 35 respectively. In the former, there were several foci of softening, one in the right putamen, another in the head of the left caudate, and a third in the left subthalamic region. A fourth foyer lay in the anterior portion of the corpus callosum ; a hæmorrhagic cyst was situated at the foot of F^1 and F^2, implicating the adjoining precentral gyrns. The latter case showed clinically a right-sided hemiplegia due to a large softening in the territory of the left Sylvian artery. The right hemisphere showed some convolutional atrophy and ventricular dilation. Pick's remaining case was one of paralysis agitans occurring in a man of 65. Autopsy revealed no microscopic abnormality, but there was a generalized outfall of cells from the right caudate and lenticular nuclei.

The case (No. 5) reported in this paper also exhibits multiple lesions of a vascular nature scattered throughout the hemispheres and brainstem. There were three small areas of softening, one in the right external capsule, one in the right half of the upper pons, and a third and large focus in the left lenticular nucleus, communicating with the lateral ventricle. In addition there were many lacunes of disintegration in both hemispheres ; the whole cerebrum was shrunken, there was a slight degree of convolutional atrophy and some internal and external hydrocephalus. The cerebellum and corpus callosum were normal.

The lack of sufficient anatomical evidence does not warrant, therefore, any dogmatic statement as to the underlying pathology of the condition, but the above case—viewed in conjunction with Trénel's and Pick's—supports the surmise that palilalia is the expression either of a diffuse morbid process, or of the summation of numerous isolated lesions.

PATHOLOGICAL PHYSIOLOGY.

Many views have been put forward to explain the pathogeny of palilalia. Some writers have regarded it as a psychotic manifestation by bringing it into line with the well-known instances of verbal stereotypy or catatonic speech. Other writers, amongst them Meige,[14] have suggested that palilalia is a variety of stammering (bégaiement). Much more attention has been paid to the hypothesis of Trénel and Crinon, who suggested that palilalia bears the same relationship to normal speech as spasmodic laughter or crying does to the normal emotional content. " Nous croyons qu'il s'agit d'un parler spasmodique relevant d'une même cause que le pleurer et le rire spasmodiques dont cette malade est également atteinte."

It is necessary at the outset to emphasize that palilalia is a disorder of speaking rather than speech. (" Un trouble, non pas du langage mais de la

parole "—Dupré and Le Savoureux). There is no disorder of internal speech, the defect being purely in the motor or effector mechanism.

Before we enquire further into the nature of palilalia it is necessary to recall the points in common between pseudobulbar palsy and postencephalitic Parkinsonism, the two disorders par excellence with which palilalia is associated. Both these syndromes are characterised by generalised rigidity of greater or less degree, by a more or less asthenic muscular state and by an upset in the ratio of automatic to volitional movement. Thus in both conditions we find the play of volition or quasivolitional activity reduced to its minimum, as exemplified by the fixed and wooden facies, the statuesque pose, the poverty of spontaneous movement and lack of play of gesture. Movements themselves are slow in initiation and execution (bradykinesia).

With regard to the movements concerned with the more automatic activities such as speaking, walking and running, we may trace in some cases evidence of exaggerated activity. There is, moreover, an obvious delay in checking the movement at will, which contrasts with the delay in the genesis of spontaneous movement. It is as though a certain static energy had to be generated in order to overcome the primary inertia or 'unwillingness' to move; once overcome the movement proceeds automatically with more and more ease so that it becomes checked voluntarily only with difficulty. These features are well illustrated in the gait; there is a preliminary difficulty in 'getting off the mark'; once started, however, the patient progresses with more and more rapid steps over which he may actually lose control, hence the propulsion and festination characteristic not only of the Parkinsonian but also of the arteriopath.

Somewhat analogous to this phenomenon is palilalia. Babinski and Mlle. Lévy have pointed out that many of these patients exhibit a variety of mutism alternating with their palilalia, as though loath to embark upon the act of speaking. Once this unwillingness is mastered the speech is emitted in monotonous form; the rate of utterance tends to accelerate, and as in the case of walking, the patient finds difficulty in ceasing. It is easier to go on talking than to make the effort of stopping.

Palilalia tends to be absent when there is a smooth and orderly progression of successive concepts; thus, when the patient spontaneously utters a speech composed of two or more sentences it is only the last sentence which becomes implicated in the palilalia. The same is true of replies comprising two or more sentences. It is as though the act of speaking can proceed normally only so long as the patient 'has something to say'; as soon as his thought is expressed palilalia puts in an appearance; for the same reason short uniphrasic utterances are the most likely to be repeated, whilst reading aloud or recitations are enunciated normally.

Such a view is closely analogous to that of Claude, who in describing a somewhat allied speech phenomenon, employed the term "verbal antepulsion and festination." Claude described, under the title of progressive paroxysmal

tachyphemia, a condition in which there was an acceleration of speech with repetition of a word or fragment of a sentence, in cases of paralysis agitans. Unlike palilalia, however, these repetitions were also present during pre-formed speech automatisms as when counting or reciting from memory.

This latter proviso must be regarded as a criterion of palilalia; it dissociates clearly voluntary from automatic speech: whilst in the former case the speech is characteristically festinant and repetitive, speech automatisms on the other hand present none of the marks of palilalia. In this way palilalia may be compared to the paradoxical kinesia of the Parkinsonian who, unable to walk without the utmost difficulty, can nevertheless run, dance or cycle with comparative ease. If we regard walking as an instance of a 'most automatic' or 'least voluntary' movement, then running, dancing and cycling may be regarded as pre-formed automatisms, or movement-patterns. Similarly, reading aloud and singing must be considered as speech automatisms, easier of execution from the mechanical standpoint than spontaneous conversational speech.

*For permission to report these cases I beg to thank the Physicians of the National Hospital, Queen Square; it is a pleasure, moreover, to acknowledge the kindness of Dr. Hood and Dr. Feldman, the medical superintendents of St. Mary-le-Bone and St. Pancras Hospitals, in permitting me to quote Cases 5 and 6.

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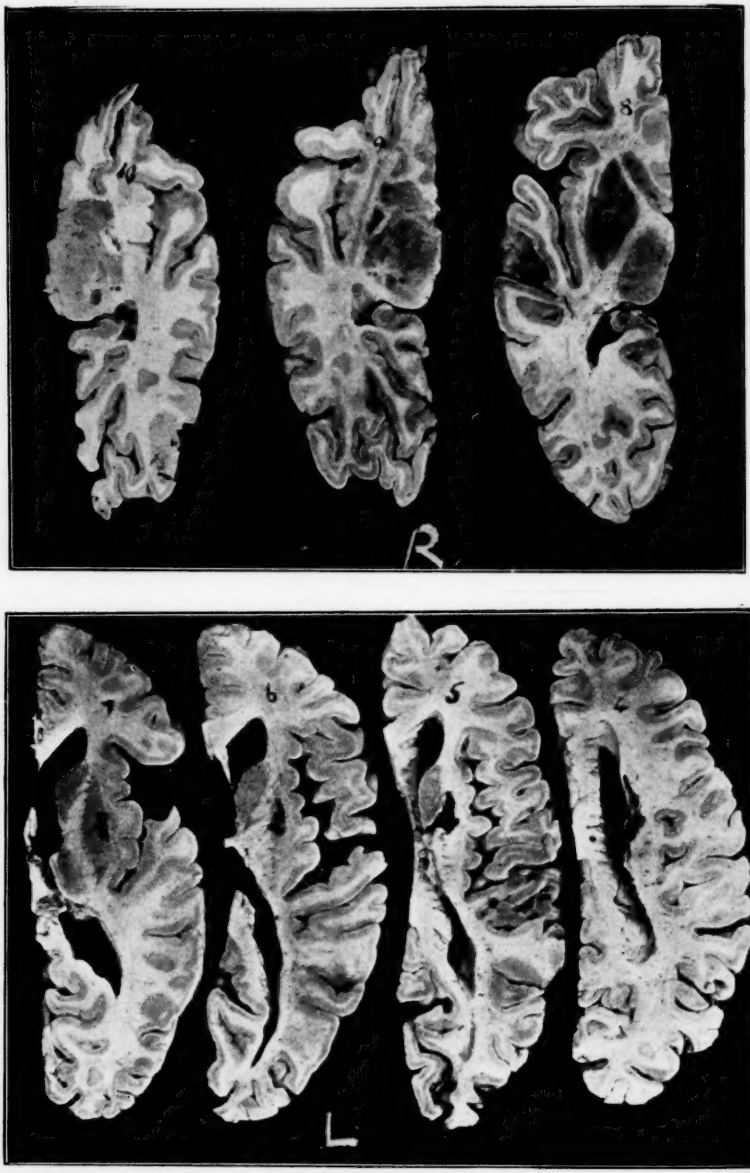
FIG. 1.

Photograph of right and left hemispheres from brain of Case 5.

The right half of the cerebrum is characterized by numerous lacunes situated mostly in the region of the basal ganglia. The middle section also illustrates the softening in the external capsule.

The left half shows the large softening which has burst into the ventricle. Note the internal hydrocephalus which has compressed the caudate nucleus and optic thalamus.



Short Notes and Clinical Cases.

A CASE OF CATAPLEXY.

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THE record of this patient's condition is of some interest for various reasons. Episodic complete loss both of tone and of voluntary movement in the entire muscular system occupied the foreground of the clinical picture. Abnormal drowsiness did not occur in 'attacks,' but only (as far as known) periodically in the afternoons. Several of the episodes of loss of muscular power and tone ('cataplectic' attacks) were observed by the writer, who at the time did not know of the occurrence of such attacks as part of the syndrome of so-called idiopathic narcolepsy. No physical signs of organic disease being observed in the intervals, an effort was made to explore possible psychological causes, and to employ psychotherapy. Psychological factors were evident enough, but psychotherapy had no lasting effect.

Male, age 40; married. Admitted to the Cassell Hospital: August 1925; discharged: October 1925.

Complaints: The patient feels weak or falls when asked a question or when meeting people, but does not lose consciousness. In the afternoons, he feels giddy and has difficulty in walking straight. Between attacks he is quite well.

Family history: He is the youngest of three children, the others being healthy. His father died in August 1924 at the age of 85, having been a very healthy man. His mother is alive and suffers from paralysis agitans.

Personal history: As a child he was not considered nervous in any way. He had the usual exanthemata. At school he was more proficient at games than in scholarship. He could sprint 100 yards in 11 seconds at 14 years of age. He left school at 14 and entered an accountant's office, which he left after nine months to enter a stockbroker's. In 1914 he joined the Army immediately on the outbreak of war, reaching France in November. He was wounded twice and suffered from frostbite. Commissioned in 1915, he went out to Mesopotamia, and joined the forces endeavouring to relieve Kut. He was wounded in the thighs in January 1916 and received no treatment for seven weeks, having been diagnosed as a case of gangrene (he said) and left for dead. While lying neglected in hospital, he became afraid of people coming into his room. In March 1916 he was at last operated on, in India. He then volunteered for transport work in Persia and was the only white man in charge of a mixed crowd of Punjabis and Brahmins, who were always quarrelling. His command was continually raided by Afghans and the patient became "nervous." He felt he could not do his job, and that he was "failing." He was weak, slept badly, and dreamt that Afghans were in his tent. His case was diagnosed as "shell-shock." After the armistice he volunteered for an Afghan campaign but was rejected because "the government would get no work out of him" then (he was told), but he "would be all right when he got home." At that time he was depressed, afraid

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of people coming into his room, even of his best friend, although he wanted to see him. He was also tremulous and very easily exhausted. When he returned home, he would jump when spoken to, and did not wish to meet people, preferring to sit alone. His memory for proper names was poor; he found it difficult to recollect even the names of his friends. He was considerably perturbed at the prospect of re-entering civil life and of having to build up his old business connections again. After returning to his work, however, he gradually improved.

In February 1923 he was in a motor-car accident, sustained concussion, and was unconscious for twenty hours. He was treated at St. George's hospital for four weeks, and then had a holiday for ten days. It was said that there was no fracture. He observed no ill-effects, except loss of the sense of smell.

In April 1924 he married a woman 11 years younger than himself. The marriage was happy. In August 1924 his father died. This was a source of some financial concern to the patient, who had to wind up his father's affairs. In November 1924 the patient first heard rumours that the firm of stockbrokers for whom he worked intended to buy him out of a small business of his own, from which he derived most of his income, and with which he did not wish to part. This worried him a great deal, but it was not till February 1, 1925, that he knew definitely that he was to be bought out. His employers paid what he considered a poor price. His income was thereby reduced to about one-half, and his prospects still more so. The patient felt that he had just cause for grievance.

Present illness: In the meantime, at Christmas 1924, at a party at the home of his father-in-law, he had what he described as his first attack. His father-in-law had placed four people in a row to see which was the tallest, and the patient to make fun crouched down, knees bent, holding on to a chair. As he did so, a "funny feeling" passed over him, which worried him slightly, but he dismissed it from his mind. The same evening, while he was passing a cup and making a joke "the strength went out of his arm" and he dropped the cup.

From this time onward there developed the symptom of which he chiefly complained, viz., weakness on excitement. About February 1925 he felt compelled to restrain himself from laughing, as he "lost control of his lower jaw" and it made him feel "very uncomfortable."

In March 1925 there occurred what he called his "first severe attack." He was leaning against a desk in the Stock Exchange, when suddenly he "lost all his strength" and would perhaps have fallen but for the support of the desk. Something had happened on the Exchange which he had predicted would happen, and he was excited and wanted to tell somebody about it.

Soon afterwards he felt weak on directing an important personage to a pillar-box, and attributed this to "excitement" again.

There also appeared what he described alternatively as an exaggerated "after-lunch sleepiness" or as "giddiness." If this occurred while writing, his writing and spelling were, he noticed, very bad. If he omitted lunch he felt worse than ever. He ceased to take his customary glass of beer at lunch, in the hope of improving his condition, but without effect. Usually the "giddiness" lasted about an hour and a half. He felt if he sat down he would fall asleep—and he sometimes sat down and did so. There was no history of such experiences at any other time of the day.

The attacks of weakness (in which he sometimes fell) continued to recur on the stimulus of the slightest excitement, so that his employers removed him from duty on the floor of the Stock Exchange and gave him only office work to do. His condition improved very little, and he entered hospital for treatment, with the mental reservation that his employers should pay for it, since he considered that their action in depriving him of his private business had much to do with his condition.

Physical condition on admission : He was a tall, powerfully built man, well nourished and well developed. Apart from loss of his olfactory sense, and a slight tremor of the extended fingers, no neurological abnormality was found at the time of admission. The other systems were entirely healthy.

Mental condition : There was no apparent abnormality of behaviour except that he gave the impression of always restraining himself, speaking and moving in a somewhat deliberate way. His facies showed a lack of mobility (animation) in ordinary conversation, but no defect of movement on testing. This comparative immobility was evidently the result of voluntary restraint, as he declared that smiling, or even any great movement of his circumoral muscles from any cause, might precipitate one of his attacks. His voice also was somewhat measured and monotonous ; and here again a voluntary factor entered, for the same reason.

He complained of impairment of memory, but there was no objective evidence on formal testing. There was no disorder of mood, or of thought-content He bore a mild grudge against his employers for the reason already stated.

Course in hospital : On August 14 he undertook to imitate an attack of weakness and while attempting to do so in the standing position in my room he actually had one. First his gaze became fixed but not staring (he seemed to be looking at nothing, but attending only to what was going on in himself). Then his head fell gradually forwards on his chest, jerkily (as if it were falling by its own weight and he were attempting to keep it erect). All his limbs sagged and jerked in similar fashion. He did not speak the while. The whole attack lasted about thirty seconds. He did not fall on this occasion. He must have been conscious all the time because he not only asserted that it was so, but gave practically a verbatim report of some remarks I had made to him during his attack.

During the following week he felt well and had no recurrences. On one occasion he appeared successfully on the platform as a vocalist in a hospital concert, without tremor or weakness ; but during the week ending August 29 he felt unwell for the greater part of the time, and had three attacks of " weakness," in which he fell—once when another patient persisted in trying to persuade him to sing ; again while playing tennis after feeling " nervous " all the time of the game (he felt better after this attack) ; and again when he was suddenly asked by another patient in an excited way to bring blotting paper.

At this time he made the observation that he had an attack not only when he felt surprised but also when he satisfied, e.g. when he made an unusually good stroke at tennis.

On August 31 he " felt much better " and had done so continuously since his last interview with the physician. He played singles at tennis successfully for the first time. During his interview on this day it was noted there was marked bilateral fine tremor of the facial muscles, especially in the orbicularis oculi and in the muscles of the upper half of the face.

On September 1 he played tennis in the morning and defeated a good player ; but playing again in the afternoon he felt " nervous " and annoyed with himself to start with, and was very feeble in his strokes. Afterwards he felt so tired that he could hardly take his tea and he went upstairs to his bedroom and slept for two hours " like a rock."

On September 7 he had an attack in the billiard-room after making a good shot, which was applauded. During the attack another patient pinched his arm but he could not speak to tell him so. In the forenoon he played two sets of tennis. During the first set he was comfortable ; but in the second he felt nervous and had a mild attack. At an interview in the afternoon I noted that he was very drowsy, that his left upper lid appeared slightly closed and his left pupil reacted sluggishly to light.

On September 8 he felt nervous and had several attacks while playing tennis. In the afternoon I made him lie down on a couch in the consulting-room, and told him to go to sleep. He soon fell into what appeared to be a light natural sleep, during which he

answered questions relating to his attacks. No new information was obtained. Just before being roused, he described a "feeling of uncertainty," similar to that which preceded his attacks. I found it difficult to rouse him and when he was roused (as far as I could at the moment succeed in doing so) he looked drowsy, and seemed to gaze at nothing, his eyelids being closed. On being further stimulated and urged to get up, he rose and walked towards the door of the consulting-room. But while doing so, having walked about a yard, he became suddenly limp and fell with two little cries. He subsided on the floor in a genupectoral position, his chin resting on the floor. He remained completely immobile and limp for about thirty seconds. When he recovered he denied having lost consciousness. He described his conversation with me during his sleep. He said that he seemed to be with me in another and much larger room, and he felt as if he were going through a series of attacks all the while. His memory for the gist of our conversation was accurate.

On September 20, after a period of ten days' freedom from attacks, the longest since the beginning of his illness, he had another attack, in which he dropped a coffee-cup. This attack was preceded by a feeling of anger at a nurse, who nagged him to take another patient about with him.

On the afternoon of the next day he was again placed in favourable condition for sleeping in my consulting-room, and soon was asleep. While he slept I several times assured him that he would get well. He then tried to wake up but could not, and only woke (he said afterwards) in response to my statement "You can wake up now." He answered "Thank you, doctor" and opened his eyes, While asleep he had dreamt, he said, that some other patients were "watching the experiment" and laughing at him in his sleep.

On October 5 he left the hospital at his own request, having had no attacks for two weeks. He remained free from attacks for two months after he went home, and then relapsed. For several weeks during his hospital residence, luminal and bromides were given but without apparent effect on the symptoms.

COMMENT.

The earliest attacks had apparently a *local incidence* (arm and jaw). The early attack of weakness in his arm might, of course, have been part of a more general attack, the whole effects of which were not observed, because the patient was in the sitting position at the time; but evidently it did not involve his neck muscles, for he did not observe that his head sagged at the time. The local relation of laughter to his loss of control of his jaw muscles was, however, a strong subjective impression with him, and suggests that a local form of 'cataplexy' exists.*

The *types of emotional disturbance* which precipitated an attack were anger, "satisfaction," surprise, and "excitement" of any kind. It is probable also that some attacks occurred *spontaneously* following on a feeling of "nervousness," although here anxiety may have entered. Some attacks seemed to be *initiated simply by particular muscular movements*, both voluntary and involuntary: on voluntary movement of imitation there followed one of the attacks he had in the physician's presence; and some of the local cataplexies of the jaw muscles seemed to follow the involuntary movements of laughter, when no special emotion accompanied the latter.

*"Local" varieties of cataplexy have been recorded by several previous observers.—Ed. *J.N.P.*

The jerking of the head and limbs as they sagged is of some interest, especially in view of Adie's[1] statement that it has been observed but rarely. It was quite evident, I thought, that the patient was attempting to overcome by voluntary effort (with momentary success) the loss of postural tone in the muscles of the neck and limbs.

The attacks did not occur in every emotional situation. While in hospital he played in several cricket matches, and appeared once in a concert, without an attack. Also, on a week-end leave towards the end of his stay, when he met many of his friends, he had no attacks.

The few and fleeting *neurological signs* observed in the intervals of attacks are suggestive—ptosis of the left upper lid, sluggishness of the left pupil to light, and tremor of the facial muscles. In the attacks unfortunately only his pupillary reflexes were observed ; the pupils were then normally active to light. He could not move a muscle even to speak. That his claim that consciousness was clearly preserved was well founded, was shown by his repeating verbatim what I had said to him during an attack. The occurrence of a cry at the beginning of an attack is of interest in view of the possible relation to epilepsy.

The relation of his cataplectic attacks to his afternoon drowsiness is of considerable interest, especially in view of the contention of Adie,[1] and others before him, that cataplexy and narcolepsy are due essentially to the same process in these cases. There are certain contrasts in this patient. The cataplexy was episodic and occasional : the narcolepsy (if it be called so) was periodic and never occurred in response to an environmental stimulus. Consciousness was apparently clearer in the cataplectic attacks, but comparatively obscure and dream-like in the sleep-states. In the sleep-states the patient's orientation was changed, and in one instance there were dreamy hallucinations. Nevertheless in the latter as in the former the gist of a conversation could be remembered but not at all with the same exact detail. Moreover, while he was completely unable to utter a word while in the cataplectic state, he readily carried on a conversation with the physician both in the drowsy ' pre-narcoleptic ' condition, and in the state of ' sleep ' itself. On the other hand, on one occasion he retrospectively described his experiences during his sleep as " a continuous series of attacks " (cataplectic). (This was only on the occasion when the physician was talking to him about these attacks). Also he had a cataplectic attack on one occasion immediately after waking.

It may be held that the sleepy condition in which he was observed was not identical with the afternoon drowsiness and sleep which he described. But the conditions were the same. The early afternoon was chosen for the observations, because it was at that time of the day that he habitually experienced unusual drowsiness. All that was done was to allow him to give way to his inclinations and fall asleep.

It may also be argued that in those sleep-states in which he was observed, he was really hypnotised, and not spontaneously sleeping. The reply is that the observer believed at the time that the patient was not in a state of hypnosis,

but in apparently normal sleep. He did not go to sleep on command : but took some time to do so, the phenomena resembling in all respects the normal process of going to sleep. There were hypnagogic experiences (people laughing at him) and he passed into a state of dreamy disorientation. No special suggestibility was observed.

Regarding the etiology of the condition, a good deal that was of probable importance was revealed in the history. Both physical and mental strain had been considerable, over a period of years. Actual brain-injury had occurred nearly two years before the onset. Much cause for worry was present at the time the first symptoms appeared.

As far as the pathogenesis of the attacks themselves is concerned, the hypothesis of fatigue does not seem probable, in view of the rapidity of the recovery from the individual attacks.

REFERENCE.

[1]Adie, W. J., *Brain*, 1926, xlix, 257.

Editorial.

MENTAL DISSOCIATION.

IT is not always sufficiently realized that dissociation or disjunction is, like association, an essential function of the normal mind. As, in the course of life, the individual consciously adapts himself to his environment and gains stability and personality by the organisation of his interests, he has not only to accept but to reject, and this rejection involves dissociation, just as acceptance involves association. As regards dissociation in pathological cases, the writers of the last generation thought of this in terms of associationist psychology, and in the doctrine of Pierre Janet one finds that standpoint still apparent. In his description of cases of hysteria and multiple personality he implies a general background of explanation, according to which personality may be regarded as a synthesis of mental presentations some of which can be split off from the main mass. This view is similar to the 'colonial' view of personality which we find in the writings of Ribot. But if we remind ourselves of the fact that experience involves an act of experiencing we see that the situation is rather different. The power of recall is an essential aspect of conscious memory. On the other hand, unconscious memories are unconscious or latent mental activities directed towards past events. They are not passive, but involve a certain amount of mental energy. And so we pass from Pierre Janet's theory to the theory of Freud, and find that the dissociation which is taken as a fact in Janet's theory is explained in Freud's theory in terms of mental conflict and repression. These memories become inaccessible to the individual because the mental tendencies corresponding to them are in conflict with other tendencies of the individual and incompatible with his more fundamental interests. So they are extruded by an active process of repression—they are barred from consciousness. That process of repression and extrusion, though pathological in these cases, need not necessarily be so. We must not look upon extrusion itself as essentially

pathological. It is because we have restricted the word dissociation so much to the pathological side that we find it so incomprehensible. It is because we have thought too much in terms of mental unity that cases of multiple personality seem to be inexplicable. Actually the most normal mind is a multiplicity. We are all many selves. We have to face the world from many different angles. We have many different interests. Interests in the most normal mind may conflict and be incompatible with one another. And it is a condition of mental health that such conflict can be resolved by elimination or by a higher synthesis. What makes the dissociation of multiple personality pathological, is that the elimination is not complete—that dissociation in normal mental activity is a successful reaction, and that dissociation in a pathological case is unsuccessful—is an incomplete and therefore an unsuccessful reaction. A tendency that is repressed is, as it were, rejected and accepted at the same time—rejected by clear consciousness, but still clung to by the mind.

It is misleading to look upon the problem of mental dissociation and multiple personality as something standing by itself, as if we understood mental unity and were perplexed by the appearance of multiplicity. Multiplicity is an aspect of the normal mind, just as much as unity is, and unity needs explaining just as much as multiplicity does. Those two problems must be solved together and kept in relation to one another all through.

Many of the classical cases of multiple personality are fully explained along these lines. They are cases of alternating personality with reciprocal amnesia, as it is called, in which each personality is unable to recall the experiences of the other. The two individuals A and B alternate with one another. A has his own system of memories and, when he disappears and makes way for B, B has his system of memories distinct from the memories of A. We may explain this in terms of two general systems of interests which are mutually incompatible and in conflict with one another. As a rule, one part of the personality is more fundamental, *i.e.*, more stable than the other. But difficulty arises in cases where one personality is shut up within its own memories and experiences, while the other personality has access to those memories as well as to its own. A may have his system of memories but be quite ignorant of B, except from indirect evidence, whereas B not only has a special set of memories, but also has direct knowledge of A's memories, thoughts and feelings. This is a difficult

problem which needs to be faced. We find an analogous, though not identical, situation in most cases of deep hypnosis. When a patient passes into the hypnotic state, he may remain fully aware of his waking consciousness, and may have free access to the memories of his waking self. But on awaking he does not, as a rule, remember his hypnotic experiences. The relation is a one-sided one. The hypnotic personality is acquainted with the waking personality, and all its memories, but the waking personality is not acquainted with the hypnotic personality. The range of the hypnotic personality is wider than the range of the waking personality. This similarity between one-sided multiple personality and the hypnotic personality is significant, when we remember that such cases have been investigated by the hypnotic method. Pierre Janet, Morton Prince and others used the hypnotic method in studying cases of multiple personality, and the criticism has been made against them that in doing so they were manufacturing personalities—that the personalities were artifacts produced by the method. Everyone recognizes that these investigators are psychologists of exceptional ability and circumspection and honesty of purpose, thoroughly trained and alive to the possibilities and difficulties of their method. We cannot dismiss their observations as false observations, or as misunderstandings on their part. But we must nevertheless allow for the influence of the process of hypnosis in the result, and as contrasted with that earlier period of investigation—the hypnotic period in psychopathology—we find that, now that hypnosis is seldom used and has been replaced by deep analysis, cases of multiple personality are not on record. The psychoanalysts to-day seem to have no such cases to report. Moreover, if we contrast the very large number of cases of severe nervous disturbance caused by the late war with the absence of cases of multiple personality there, we may become still more impressed by the argument that it was the persistent use of the hypnotic method that was mainly responsible for the complexity of most of the earlier cases reported.

The movement of thought is always towards system and unity. Thought abhors hard-and-fast distinctions. Thought is baffled by cases of multiple personality, because they are so different from the ordinary cases of everyday life. If we can build a bridge between one group of cases and the other, then we may feel that we are likely to have not only a more satisfying but a truer explanation of the situation.

We must therefore approach the question of dissociation from the normal side—as manifested in a relatively normal mind. No mind is completely normal, since no mind completely solves its problems from day to day, and it is the failure to solve mental problems which is one of the general causes of the symptoms of psychoneurosis and mental disease. Dissociation and multiple personality are not to be contrasted with association and mental unity. Pathological dissociation should be contrasted with the dissociationist processes of the normal mind. It should be regarded as a failure of the normal process of dissociation.

The unity of the normal mind, although it is there from the beginning, is a striving towards a more and more complete association; it constitutes an 'urge' to a greater and greater degree of completeness of systematization and inclusiveness, but it is never really complete. In the most normal mind there is a falling away from complete unity. There is in the activity of this unitary mind not only a normal process of disjunction or dissociation, but also a certain degree of abnormal dissociation. In cases of multiple personality this abnormal dissociation has become so pronounced as to become apparent to the whole world. The process of deep analysis or psychoanalysis fails to reveal cases of thorough-going multiplicity, and the reason is that the process itself is a process of unification. As the individual is being analysed, the failures of adaptation in his past life are cleared up, and so his mind is enabled to work more and more normally. Analysis is not a good term for this process. It is more than analysis, it is a process of self-revelation or *autognosis*. The individual learns to know himself better, and in the process of analysis there is actual development of the mind going on. There is a development in the direction of the normal and the unitary. Any dissociation that is encouraged by the method is a normal dissociation, not an abnormal dissociation. It is only another expression of the same truth when we say that repressions are overcome in the process of analysis, because repressions are pathological dissociations—dissociations that are not complete and not thorough-going.

In contrast with this process of autognosis, the process of hypnotic investigation carries with it a tendency to dissociation. A person who is easily hypnotised is a person who is already, to some extent, dissociated; in hypnotising him we take a wedge, as it were, and drive it into his mind and split him up still more. No wonder the results give us an appearance of dissociation; but it would be very dangerous for us to take

these results at their face value and draw inferences from them as to the structure of the normal mind, or even of the mind of the person we have been experimenting with. What may happen when we do take these phenomena at their face value is illustrated in such a theory as that of Professor W. McDougall in the last chapter of his "Outline of Abnormal Psychology," in which he works out a theory of the Self as a system of monads which form a hierarchy, in which there is one dominant monad, the conscious self and a whole number of subsidiary monads that are in a normal mind adequately subordinated to the chief monad and are in relation to the chief monad through telepathy*; but in a case of multiple personality one of these subsidiary monads may break loose and become insubordinate. This is an ingenious theory, and it may be true, but in the present state of our knowledge it would seem to be a case of explaining *obscurum per obscurius*. Telepathy may be a fact, but it is something about whose conditions we know nothing, and to appeal to it as a fundamental factor in an explanation of the working of the mind seems to be a doubtful procedure.

*Unlike the monads of Leibniz, which "have no windows," and are in a relation of pre-established harmony.

Abstracts.

Neurology.

NEURO-ANATOMY AND NEUROPHYSIOLOGY.

[1] **The relative weight of the brain cortex in human races and in some animals and the asymmetry of the hemispheres.**—C. U. Ariens Kappers. *Jour. Nerv. Ment. Dis.*, 1926, lxiv, 114.

An important anatomical study of the relation of brain cortex to total body weight in various animals, showing the great importance of fissuration in the development of the cortex in the apes and man.

R. G. G.

NEUROPATHOLOGY.

[2] **Mucoid degeneration of the oligodendroglia** (Die muköse Degeneration der Oligodendroglia).—P. Bailey and G. Schaltenbrand. *Deut. Zeits. f. Nervenheilk.*, 1927, xcvii, 231.

Glia is divisible into neuroglia and microglia, the former, further, into astrocytes and oligodendroglia. Astrocytes are distinguishable by the fact that they form processes or "suckers" which attach themselves to the perivascular membrana limitans gliæ. They are themselves divisible into the protoplasmic astrocytes of the grey matter and the fibrous astrocytes mainly of the white. Oligodendroglia is found everywhere in the nervous system, though chiefly in white matter; the nuclei are small and round, the cytoplasm scanty, with minute granules in it resembling gliosomes, and a rudimentary reticulum. The cells possess 3-5 processes which divide dichotomously, and also show minute granules. Microglia, probably of mesodermal origin, is found throughout the nervous system; the nuclei are small, longish, and take stains deeply; the cell body is also rather elongated, with as a rule two main processes which radiate widely. Under pathological circumstances microglia is transformed into rod-cells and compound granular corpuscles. Changes in oligodendroglia as a result of pathological conditions have been fully described by Penfield. A peculiar alteration of glia presenting the reactions of mucin has been noted by Grynfeltt in senile brains. The authors have specially studied a case of Schilder's encephalitis diffusa from the standpoint of glial change and have come to the conclusion that Penfield's "acute swelling of the oligodendroglia" and Grynfeltt's "mucoid degeneration" are identical, representing different grades of one and the same process.

The paper is illustrated with fine coloured plates and with microphotographs.

S. A. K. W.

[3] **The acute regressive changes of neuroglia** (amœboid glia and acute swelling of oligodendroglia).—WILDER PENFIELD and WILLIAM CONE. *Jour. f. Psychol. u. Neurol.*, 1926, xxxiv, 204.

DIFFERENT views as to the nature of certain glial elements and changes depend greatly on the technique employed. The authors have studied glial cell changes by utilising for the same material the methods both of Alzheimer and of the Spanish school (Cajal, Achucarro, Hortega).

Neuroglia astrocytes can be divided into two main classes, according as they do or do not form fibres. The fibres are normally clothed with a thin coating of cytoplasm extending well out from the cell-body. There does not appear to be any genuine neuroglia syncytium in the sense propounded originally by Held. Separate from neuroglia is Cajal's "third element" (small adendritic cells). These have been analysed by Hortega into oligodendroglia and microglia; the former develops from the same source as neuroglia astrocytes but is distinct, while microglia is completely different, both structurally and because of its different behaviour under pathological conditions. Its reaction then is like that of the macrophage elsewhere in the body, and it is transformable into rod-cells and into compound granular corpuscles.

In central white matter will be found fibrous astrocytes, oligodendroglia, and (occasionally) microglia. In central grey matter are seen protoplasmic astrocytes, oligodendroglia cells round nerve-cells, and numerous microglia cells. Both oligodendroglia and microglia cells appear as perivascular satellites; the former contain gliosomes and the latter do not. Neither type has vascular feet or suckers like the astrocytes, nor does either form fibres.

As for the amœboid glia of Alzheimer, described by him in a variety of pathological conditions (mainly acute diseases of the central nervous system), it was thought by Wohlwill to represent a stage which neuroglia astrocytes pass through as they degenerate. Others have shown that the change is largely agonal or cadaveric—in any case, almost certainly purely regressive. Amœboid glia plays no active rôle in destructive brain lesions; neural phagocytes come from the microglia (probably mesodermal in origin). Occasionally neuroglia astrocytes will take up substances, but, speaking generally, microglia is far more resistent to acute toxic and inflammatory conditions and plays an active rôle in destructive processes, whereas the amœboid transformation of neuroglia is purely passive. It is true that owing to some chronic pathological state astrocytes may first have increased in number and hypertrophied, subsequently to degenerate through the amœboid stage. Acute swelling of oligodendroglia appears under conditions similar to those which produce amœboid glia, but earlier, and often without any change in the astrocytes.

S. A. K. W.

[4] **The sugar and chloride content of the cerebrospinal fluid with special reference to neuroyphilis.**—WILLIAM BECKER. *Amer. Jour. of Syph.*, 1927, xi, 37.

THE author has investigated the chemistry of the cerebrospinal fluid in 151 cases of neurosyphilis and 24 controls. The glucose was examined in order to investigate the assertion made by various writers that this substance varies in concentration in the cerebrospinal fluid of neurosyphilitics, according to the type of the disease and the cell-count, and may rise as a result of treatment. Becker has found no evidence to support either of these statements. In his controls the spinal fluid glucose varied from 56 to 77 mgm. per 100 c.c. and in all except two of his neurosyphilitics it lay between 41 and 74 mgm.; in one it was 82 mgm. and in one 100 mgm. In the latter case pancreatitis was found at autopsy. Treatment produced very little change in the 26 patients examined to this end. In some there was a rise of 7 mgm., in others a fall of 5 mgm., two remaining as before. Nor could he find that an examination of the sugar in the cerebrospinal fluid gave much evidence on which to base prognosis, although he states that those cases which appear to be resistant to treatment tend to have a low percentage of sugar, and there is a slight tendency toward low values for sugar in the spinal fluid along with high cell count and in cases with colloidal benzoin reaction in the first zone. Alimentary hyperglycæmia up to 185 mgm. produced no increase of sugar in the spinal fluid.

The chlorides were found to fall between 660 and 780 mgm. in all the fluids examined. In the controls they were always between 710 and 775 mgm., but in a few of the cases of neurosyphilis they fell below 700 mgm.

The author considers all the figures he obtained to be normal with the technique he employed, and he does not make any comment on the nature of the cases in which such low readings as 660 mgm. were found.

J. G. GREENFIELD.

[5] **Replacement of lumbar puncture by cisternal puncture** (Ersatz der Lumbalpunktion durch die Zisternenpunktion).—O. KROISZ. *Allg. Zeits. f. Psychiat.*, 1927, lxxxvi, 51.

LUMBAR puncture is the routine method of getting cerebrospinal fluid, according to present usage; though generally considered easy, safe, and without ill-effects, it has drawbacks, in the author's view, which make cisternal puncture preferable. Apart from its dangers in cases with intracranial pressure, the proportion of cases which have fairly severe after-effects is considerable, and the risk of getting an admixture of blood in the fluid is inconvenient for diagnostic purposes.

The author gives details of his technique for cisternal puncture. He advises introducing the needle at a point slightly lower than that generally advocated, so that it is directed more obliquely upwards through the foramen

into the widest part of the cisterna magna. He prefers to have the patient lying in an exactly horizontal position, and measures the pressure as a routine. Platinum-iridium needles only are used. As much as 30 c.c. can be withdrawn without ill-effects. He emphasises that patients should be advised to sit or walk about as usual, and not remain lying down afterwards. In the few cases where a little blood runs first the following fluid becomes completely clear.

He claims that he has found far fewer cases having any after-effects with this method than with lumbar puncture, and that especially for neurotics it gives rise to no symptoms of a functional kind which may become fixed. Where relief of intracranial pressure is required this is obtained without danger. Experiments on the cadaver show that cisternal puncture draws off the fluid from the ventricles after the first few cubic centimetres, and thus relieves quickly any intraventricular pressure. He advocates strongly the replacement of lumbar puncture as a routine by cisternal puncture.

M. R. B.

[6] **The circulation of the cerebrospinal fluid from the standpoint of intraventricular and intraspinal therapy.**—C. C. Riquier and A. Ferraro. *Jour. Nerv. Ment. Dis.*, 1926, lxiv, 561.

The literature is reviewed and discussed and a full bibliography is appended. The conclusions drawn are that a drug introduced into the ventricular cavities or the subarachnoid space is distributed by means of a descending current from the ventricular cavities towards the subarachnoid spaces by way of the foramina of Luschka and Magendie or by the functioning membrane of Weed. The drug may pass through the cerebral parenchyma, directly reaching the nervous elements by way of the perivascular and perineural spaces.

A drug introduced into the subarachnoid space may reach the cerebral parenchyma by means of an ascending current. There is also a tendency to penetrate the tissues especially if it is introduced under pressure or after the use of intravenous injections of hypertonic salt solutions. There may also be an ascending current in the central spinal canal which will convey upwards any drug present in the fluid. The drug may reach the arterial circulation by the perineural lymphatics or by venous absorption. Dyes introduced into the subarachnoid space have been proved to reach the nervous parenchyma.

R. G. G.

[7] **Diffuse glioma (gliosis).**—F. P. Moersch. *Jour. Nerv. Ment. Dis.*, 1926, lxiii, 343.

The author describes two cases and discusses whether cerebral gliosis can be a sequel of trauma or inflammation. He is still uncertain whether such a derivation can usefully be established.

R. G. G.

[8] **The Spielmeyer-Vogt variety of amaurotic idiocy** (Nouvelles récherches sur la forme de Spielmeyer-Vogt de l'idiotie amaurotique).—G. MARINESCO. *Bull. Sect. Scient. Acad. Roumaine*, 1927, x, 1.

THIS is a long and detailed study of the pathology of a case of amaurotic idiocy in a female child of five years, not of Jewish race. It is difficult to summarise succinctly the findings in the neuraxis, but it may be said they conform to those noted by previous workers on the same type of material. Special attention is devoted to the results obtained by the method of Graeff for oxydases. As in other cases, the cerebellum was markedly atrophied, and the conclusion is reached that the difference between its state and that of the same organ in the average case of the infantile form is merely one of degree. An interesting discussion on the bearing of the lesions on problems of heredity is appended.

S. A. K. W.

SENSORIMOTOR NEUROLOGY.

[9] **Degeneration of the microcellular system of the neostriatum, together with a pachymeningitis hæmorrhagica totalis, in a case of chorea chronica progressiva.**—F. H. G. VAN LOON and A. J. F. OUDENDAL. *Psychiat. en Neurol. Blad.*, 1927, xxxi, 11.

THE case was that of a man, a Dutch East Indian native, of unknown age, whose symptoms were those of chronic progressive chorea, ataxia, dysarthria, without clinical signs of pyramidal disease. The Wassermann reaction in the blood was strongly positive. Death resulted from exhaustion.

The pathological condition presented unusual features. The whole of the cerebral hemispheres (not the cerebellum) was covered by a solid, tough, greyish-yellow membrane, a sort of "third membrane" coming between the dura and the pia, and adherent to both. It appeared to represent the remains of the arachnoid, and was composed of stratified layers of hæmorrhagic effusions, with innumerable pigmentary deposits and lymphocytic foci. In the brain itself the chief changes were as follows: disappearance of the small cells in the caudate and putamen; intense vascular proliferation in putamen and globus pallidus; generalised pigmentary changes in corpus striatum, optic thalamus, nucleus ruber, dentate nucleus, inferior olive and choroid plexus; little glial proliferation anywhere; diffuse areas of degeneration in the white matter of the cerebrum, at various spots; cortex itself remarkably free from pathological change.

A very fair and interesting discussion of the problems of chorea and other involuntary movements is given by the authors, and it is satisfactory to note their appreciation of the difficulties of interpretation of the pathological findings in such cases. They conclude that "all choreatic kinetic impulses have their origin in the cortex."

S. A. K. W.

[10] **A case of chorea with hepatic cirrhosis** (Ueber einen Fall von Chorea mit Lebercirrhose).—G. SCHALTENBRAND. *Deut. Zeits. f. Nervenheilk.*, 1926, xci, 174.

THE patient was a woman of 59, who suffered from obvious hepatic trouble with jaundice, in a chronic state. Some years after these symptoms began she developed a series of apoplectiform attacks, and eventually a condition of chorea. A few months before her death mental symptoms made their appearance. The pathological findings included cirrhosis of the liver and enlargement of the spleen; on the nervous side degeneration of nerve-cells, neurogliosis, increase of capillary formation, and irregularly systematised degeneration of myelinated fibres, resulting in areas of cavitation, were the chief changes. These were in general most prominent in the frontal lobes, corpus striatum, mesencephalon, and dentate nucleus. The author places his case in the group of hepatolenticular degeneration.

S. A. K. W.

[11] **Direct and reflex paralyses in extrapyramidal lesions** (Les paralysies directes et réflexes dans les lésions extrapyramidales).—MAX EGGER. *Arch. Suisses de neurol. et de psychiat.*, 1926, xix, 39.

THE author has made a careful study of a number of cases of Friedreich's disease and other organic conditions with a view to showing that a terminal organ (muscle or muscle group) with varied motor reactions may be paralysed for one of its manifestations but not for others. This is an old and well-established conception, though there is no reference in his interesting clinical paper to the work of Jackson, Beevor, and others who have examined the point. Speaking generally, the reason for the return of power in the leg before the arm in the case of ordinary hemiplegia is, according to the author, that the arm has become emancipated from the function of locomotion and is more under the influence of volition than the leg, which remains relatively more automatic. He believes that an opposite or converse condition holds for extrapyramidal cases. There are two "dynamisms" in the motor system, the "volitional" and the "kineto-static," and one may be affected by a lesion and the other not. The differences between the two are worked out ingeniously. The contrast between volitional power and kineto-static enfeeblement is well seen in Friedreich's disease. Incidentally, the author enlarges on the well-known fact that the condition of the reflexes is no index to the existing degree of pyramidal (volitional) power.

S. A. K. W.

[12] **On attacks of loss of tone** (Ueber Tonusverlust).—M. BERLINER, H. HOFF and P. SCHILDER. *Deut. Zeits. f. Nervenheilk.*, 1926, xci, 236.

THE patient in this peculiar case was a woman of 36, who showed the following unusual symptoms. If she sat with eyes closed and arms outstretched the

latter soon began to droop down, while the body (upper part) also sank downwards and backwards, the head being turned to the right. When she opened her eyes she had no idea that she had thus been changing in position. If she kept her eyes open the phenomena did not make their appearance. They often occurred spontaneously, in the sense that the patient had "attacks" in which her eyes were closed (sometimes she had difficulty in opening them), and during these the symptoms of loss of tone in the body and limbs developed. Examination showed the presence of nystagmus, while vomiting and vertigo were frequent symptoms, as was an occasional rise of temperature. A tentative diagnosis of a lesion in the fourth ventricle was made.

The authors discuss the possible relationship of their case to so-called narcolepsy.

S. A. K. W.

[13] **One hundred and sixteen verified intracranial lesions with report of vestibular test findings.**—F. C. GRANT and L. FISHER. *Jour. f. Psychol. u. Neurol.*, 1926, xxxiv, 113.

THE authors have utilised vestibular tests in a large number of different organic intracranial conditions, verification having been obtained in each case by operation or autopsy. The total of 116 cases is made up of 33 cerebellar lesions, 35 pontocerebellar lesions, and 35 lesions of the cerebral hemispheres, the final 13 comprising intra- or extra-sellar lesions in the midline. It is difficult to summarise succinctly the interesting and important features of this clinical study, which deals with the practical question of the actual value in diagnosis of vestibular reactions. The authors have found certain group responses as evidence of the location of mass lesions in specific brain areas, and these are described as follows:

I. Cerebellar lesions group reaction:
   (1) Poor pelvic girdle movements.
   (2) Marked tolerance to vestibular tests.
   (3) Interference with vertigo and past-pointing responses.
   (4) Predominant signs of intracranial pressure.

II. Cerebello-pontine angle lesions:
   (1) Totally impaired eighth nerve on side of lesion in both cochlear and vestibular divisions.
   (2) Loss of function of vertical canals on opposite side, but good function from horizontal canal, with good hearing.

III. Supratentorial lesions, mid-line or hemispheric:
   (1) Marked susceptibility to vestibular stimulation.
   (2) Conjugate deviation of eyes to side of lesion.

(3) Exaggeration of nystagmic responses over vertigo and past-pointing responses.

(4) No evidence of cerebellar hemispheric lesion though increased intracranial pressure may interfere with vertical canal responses.

S. A. K. W.

[14] **The clinical manifestations of diseases of the third ventricle and its walls** (Die klinischen Erscheinungen bei Erkankungen des 3. Gehirnventrikels und seiner Wandungen).—PAUL HOGNER. *Deut. Zeits. f. Nervenheilk.*, 1927, xcvii, 238.

The patient was a young woman of 22, who complained suddenly, and only eight days before her death, of intense headache, and soon developed unconsciousness with generalised epileptic seizures. Death resulted from respiratory failure. At autopsy a hæmorrhage was found in the left optic thalamus, which had burst into the third ventricle and from thence spread to all the ventricular cavities. It arose almost certainly from a choroid tumour.

Collecting a large number of third ventricle cases from the literature, and considering his own case as one in which the hæmorrhage in that locality was mainly or entirely responsible for the symptoms (an assumption to which exception may readily be taken), the author elaborates a syndrome as follows:

1. Psychical impairment and disorder of consciousness ranging from a dazed condition to coma.
2. Tonico-clonic convulsions with or without loss of consciousness, and twitches of all kinds.
3. Vegetative disorders in greater or less degree.
4. Sudden death.

An attempt is also made to distinguish diagnostically between third ventricle hæmorrhages, tumours, hydrocephalus, tumours of the base, tumours of the roof of the same cavity.

S. A. K. W.

[15] **The significance of infection in diffuse sclerosis, together with a study of its symptomatology and pathology** (Die Bedeutung des Infektes fur die diffuse Sklerose; zugleich ein Beitrag zur Klinik und Pathologie der diffusen Sklerose).—FRANZ BIELCHOWSKY. *Jour. f. Psychol. u. Neurol.*, 1927 xxxiii, 12.

A MAN aged 50 lost nearly all his teeth without obvious cause or complaint and not long afterwards began to have rises of temperature without a lesion of any organ being discovered. After some four years of recurring attacks of fever apraxic-aphasic symptoms followed a rise of temperature and were associated with indications of a pyramidal affection of the left side, but all disappeared with a fall of temperature on the tenth day. Three weeks later a similar combination of fever and neurological symptoms appeared, only to

disappear again on the eighth day. Again the combination recurred, this time with Jacksonian attacks beginning in the left arm. The diagnosis remained extremely obscure, since between the attacks careful examination revealed no unmistakable neurological signs. At one time a typical disseminated sclerosis was considered possible, at another, so-called late epilepsy.

Eventually, pathological investigation showed that the case belonged to the group of Schilder's encephalitis periaxialis diffusa, but it also presented certain histological peculiarities linking it with other conditions at least superficially. The differential criteria as between varieties of encephalitis, and of sclerosis, including disseminated sclerosis, are carefully examined.

S. A. K. W.

[16] **Chronic arachno-perineuritis with the syndrome of Froin.**—R. R. GRINKER. *Jour. Nerv. Ment.Dis.*, 1926, lxiv, 616.

A STUDY of a case in which inflammatory changes were found in the arachnoid and perineural spaces and a discussion as to the true pathology of Nonne's pseudo-tumor of the cord. It is suggested that the lesion here described may account for many cases placed under the latter heading.

R. G. G.

[17] **Infantile convulsions : their frequency and importance.**—D. A. THOM. *Amer. Jour. Psychiat.*, 1927, vi, 613.

INFANTILE convulsions do not occur in a group of unselected cases more frequently than once in every 10 or 14 cases. There seems to be no prognostic value attaching to the pathological, physiological or psychological factors with which the first convulsion is associated. Those cases where the convulsions occur without any apparent exciting factor (that is, without trauma, teething, gastro-intestinal upsets, etc.), are invariably more significant and the prognosis should be more guarded than in those cases where the convulsion is associated with some definite etiology. In a fairly large group of cases the convulsion is but a symptom of an unstable nervous system, one that is unable to withstand the ordinary vicissitudes to which the normal child is subjected. There is undoubtedly a fairly large group of convulsive disorders in childhood where the convulsions are symptoms of an undiagnosed meningitis or encephalitis, which leaves behind irreparable damage to the nervous system. The convulsion itself, though not associated with any devastating disease, may produce damage from which the brain never recovers, as seen in : (*a*) some of the spastic conditions which follow immediately upon a series of convulsions ; (*b*) those cases following convulsions without neurological signs, but which have to adjust on a much lower mental level. The convulsions associated with rickets and tetany may leave behind definite damage to the nervous system. There is reason to believe that if the infantile convulsions associated with rickets,

gastro-intestinal upsets, and acute infections were looked upon more seriously, and a greater effort made to prevent their occurrence during early life, much epilepsy and mental deficiency might be prevented.

C. S. R.

[18] **Juvenile paresis: its salient characteristics with special reference to infantilism.**—HENRY A. BUNKER. *Amer. Jour. of Syph.*, October 1926, x, 553.

GENERAL paralysis is a rarer sequel of congenital syphilis than of the acquired disease, various authorities placing the incidence rate at from 1.3 to 1.7 per cent. It affects the sexes equally, whereas acquired general paralysis is much more frequent in males. It also tends more to the convulsive type, and frequently presents a histological picture which resembles in many ways that of cerebral syphilis. A kind of bodily infantilism or physical retardation was present in Clouston's first case, and in about 30 per cent. of those collected by Alzheimer in 1896, as well as in many others reported since then. It appears to be more common in those patients who develop juvenile paresis than in other congenital syphilitics. In the majority of patients the infantilism is of the Lorain type, but eunuchoid or adiposo-genital types are sometimes encountered. There appears however to be no histological evidence of disease of the hypophyseal region in these cases.

J. G. GREENFIELD.

[19] **Hypoplasia of the cerebellum and of the inferior olivary system in myoclonus.**—A. PRECECHTEL. *Psychiat. en Neurol. Blad.*, 1927, xxxi, 147.

THE case described is that of a young woman of 28, unmarried, who since the first year of her life had been observed to suffer from twitching movements of face, head, upper and lower limbs. They varied greatly in intensity, were aggravated by excitement, and sometimes disappeared altogether. The twitching attacks sometimes lasted several minutes at a time and are described as follows: "In such fits her eyelids twinkle, her head turns left and right, and her mouth opens wide. Sometimes she puts out her tongue, jerks her shoulder upwards with violence, and at the same time utters a peculiar sound —heh, heh, heh." She died of tetanus consecutive to an injury of the leg.

An elaborate investigation of the nervous system was undertaken and is recounted at some length. Briefly, the chief alterations found were in the medulla and cerebellum, notably in the inferior olives, nuclei dentati, and flocculi. The author considers these changes to consist in a congenital hypoplasia, affecting the onto- and phylogenetically younger parts to a greater extent than the older.

Various records are cited which indicate a possible association of myoclonus with bulbocerebellar lesions, especially of the fasciculus centralis

tegmenti and of the olives, or of the brachium conjunctivum. The interest of this case is considerable, but we note that no specific definition of myoclonus is given by the author, and we are in some doubt as to the exact clinical nature of the "twitching attacks" from which his patient suffered.

S. A. K. W.

[20] **Postencephalitic respiratory disorders.**—Smith Ely Jelliffe. *Jour. Nerv. Ment. Dis.*, 1926, lxiii, 357.

The various respiratory sequelæ of encephalitis are discussed very fully and illustrative case reports are given. It is suggested that treatment should be on psychotherapeutic lines and that psychoanalysis is likely to prove beneficial.

R. G. G.

[21] **The nosography and pathogenesis of varieties of acute serous meningitis** (Zur Nosographie und Pathogenese der akuten serosen Meningitiden). —M. S. Margulis. *Deut. Zeits. f. Nervenheilk.*, 1927, xcvii, 179.

The exact nosological position occupied by acute serous meningitis has always been somewhat controversial, and its pathogenesis somewhat obscure. In this paper some dozen cases are reported which are considered to belong to the category, but if they are scanned critically it appears that in more than one instance the diagnosis is as a fact uncertain. They are none the less of some clinical interest. The symptoms are given as : headache, vomiting, photophobia, pains in the eyes, rise of temperature and reduction of pulse rate, rigidity of neck and back muscles. Symptoms of localising worth are commonly of the subtentorial class, but in other instances bilateral pyramidal signs are found. In every one of the reported cases the cerebrospinal fluid was altered, a lymphocytic pleocytosis being present in varying degree. In six cases a definite xanthochromia was obtained. No bacterial element was discovered in any one of the fluids.

Typhoid, influenza, pneumonia, faucial angina, are mentioned as among the causes of the development of acute serious meningitis or meningo-encephalitis, also infections of middle and inner ear, and of nasal sinuses. The condition is stated to be due to a specific tissue-reaction, consisting in hyperæmia, œdema, and exsudative-proliferative alterations in the lepto-meninges. Two clinical forms can be distinguished ; (1) diffuse, with the general symptoms of acute meningo-encephalitis, commonly more meningeal than encephalitic ; (2) circumscribed, resembling the symptoms of acute hydrocephalus. This latter variety develops from a limited meningitis of the base, involving the sympathetic plexuses of the carotids intracranially, together with the branches supplying the vessel plexuses of the ventricles, hence a hyper-secretion of the cerebrospinal fluid therein.

Treatment with endolumbar injections of urotropin and with intravenous injections of urotropin and electrargol combined has proved of great benefit.

S. A. K. W.

[22] **Dystrophia myotonica** (Zur Kenntnis der myotonischen Dystrophie).—WILHELM SERG. *Deut. Zeits. f. Nervenheilk.*, 1927, xcviii, 29.

In the family described by the author a grandfather suffered from senile cataract; two of his children (one male, one female) exhibited dystrophia myotonica in typical form, while two others (one male, one female) showed minor myotonic symptoms; the typically myotonic daughter had a son who similarly exhibited the disease in a quite incomplete form. Stress is laid on the clinical symptoms of frontal baldness, prognathism, amyotrophy, commencing cataract, and testicular dystrophy, but it is considered that the association of the myotonia with a general feeling of physical ill-being is the outstanding feature of the disease. No fresh light is thrown on its essential nature or pathogenesis.

S. A. K. W.

[23] **Dystrophia myotonica and its relation to the autonomic nervous system** (Ueber myotonische Dystrophie und ihre Beziehung zum autonomen Nervensystem).—J. CHRISTENSEN. *Deut. Zeits. f. Nervenheilk.*, 1927, xcvii, 216.

The patient, a man of 35, exhibited the classical symptoms of dystrophia myotonica as follows: (1) myotonia and muscular atrophy with involvement of the usual muscles in these cases; (2) frontal baldness, presenile cataract, testicular atrophy and impotentia; (3) family history of cataract.

Investigation of the vegetative nervous system showed a paradoxical reaction of adrenaline on the heart (pulse rate lowered to 55). Atropin and pilocarpin were without recognisable effect. The author goes so far as to conclude that all the symptoms of the condition are referable to disorder of function of the autonomic system, possibly of central, hypothalamic origin.

S. A. K. W.

[24] **Hemiatrophia cruciata progressiva** (Ueber einen Fall von Hemiatrophia cruciata progressiva).—JAKOB RATNER. *Deut. Zeits. f. Nervenheilk.*, 1927, xcvii, 304.

This is a really remarkable case of the rarity known as crossed hemiatrophy, of which the author has been able to find only two previously recorded instances. The patient is a girl of twelve, whose symptoms began approximately at the age of five. She presents an advanced panatrophy of the left side of the face and a moderate atrophy of the right arm, right side of the trunk, and right leg. The facial condition is typical of "facial hemiatrophy," and involves also the tongue; the left cheek is pigmented and sclerodermatous; the left pupil is dilated, completely fixed, and quite distorted. Over the whole of the left hairy scalp are patches of alopecia and canities arranged irregularly, and they are bounded sharply by the midline of the head. On the right side of the chest and over the right arm are spots and patches of vitiligo. The reflexes are normal, and motor power is impaired only in proportion to the amyotrophy.

On the right, from D7 to S5, is found a degree of hyperalgesia and of thermal anæsthesia. No change in the appearance of the sella turcica was noted by X-ray examination. Normal secondary sexual characters have appeared and menstruation is established. An interesting discussion of the nature of the case is given.

S. A. K. W.

[25] **On so-called late tetany** (Ueber die sogen. Alterstetanie).—K. Bettenhauser. *Deut. Zeits. f. Nervenheilk.*, 1927, xvcii, 267.

The classification of tetany given by the author may be summarised in the following way :

1. Tetany of childhood and youth.
2. Late tetany. In these cases the symptoms make their appearance in the third decade or subsequently. Certain varieties can be distinguished.
   (a) Gastrointestinal form.
   (*b*) Postoperative form : (1) after strumectomy ; (2) after other operative procedures.
   (*c*) Tetany in association with maternity.
   (*d*) Primary endocrine tetany without recognisable cause.
   (*e*) Toxi-infective variety, endogenous or exogenous.
   (*f*) Tetany accompanying other nervous conditions.
   (*g*) Experimental tetany.

These clinical groups are discussed at considerable length, with illustrative instances.

S. A. K. W.

TREATMENT.

[26] **The treatment of general paralysis by the organism of recurrent fever** (Beitrage zur Rekurrens-Behandlung der progressiven Paralyse).—L. Benedek and F. Kulcsar. *Deut. Zeits. f. Nervenheilk.*, 1927, xcviii, 57.

The authors used a strain of *spirochæta Duttoni* obtained originally from Central Africa. Mice and rats were infected with the organism and their blood (usually heart's blood, obtained by direct puncture) was injected into the patient concerned either subcutaneously, by scarification, intracutaneously, or intravenously. Later, blood from patients who had been successfully infected was withdrawn during an attack and utilised for others (commonly four to five cubic centimetres). As a rule four to six attacks of fever occurred ; occasionally the relapses went up to eight or ten. In some six weeks the recurrent fever usually died down spontaneously ; on rare occasions the authors had recourse to tincture of strophanthus or " kardiozol."

A very long and well documented analysis of the clinico-pathological features of cases treated by this method is given in the paper, but only one or

two of the chief considerations can here be conveniently summarised. In the series of cases there were 74 of general paralysis. Of these 37 showed clear improvement (50 per cent.); 20 were unchanged, in 17 the patients became worse, and of these 15 died. The death rate was higher than the 5-10 per cent. of other workers who have employed the same method, but is to a large extent explained by the fact that the majority of the cases handled were already in an advanced stage of the disease. It was specially noted that patients who received endocisternal or endolumbar injection of infected fluid formed a higher proportion of the fatal cases than did those in whom the intravenous route was chosen, even though precisely the same material was used for both. One of the patients developed herpes zoster during the recurrent fever; his cerebrospinal fluid, to the amount of 8 c.c., was injected endocisternally into another, who developed herpes two weeks after his fourth recurrent attack; on the other hand, two other patients similarly treated did not develop herpes.

The authors found a frequent parallelism between changes in the clinical symptoms and in the fluid findings in cases treated by this method, but the association did not apply to the Wassermann reaction in the fluid, which did not vary correspondingly with the other tests. Certain complications of the method are fully described.

S. A. K. W.

[27] **Tryparsamide therapy in general paralysis of the insane.**—T. M. Davie. *Jour. of Ment. Sci.*, 1927, lxxiii, 217.

It is concluded that tryparsamide is undoubtedly a most valuable therapeutic agent in general paralysis, and in allied neurosyphilitic infections. Its marked tonic effect is unique and is produced early in the course of treatment. It arrests the progress of dementia and prevents paralysis. Mental improvement of some degree may be expected in almost every case. Decided mental improvement may occur long after treatment (*e.g.*, six months). Serological improvement may occur a long time after the completion of treatment. In one case the cerebrospinal fluid only became negative eighteen months later. Serological improvement need not accompany clinical improvement. There seems no reason to expect untoward effects of a serious nature with weekly 3-grm. doses of this drug.

It must be observed that these cases did not include any with disease of the optic tract, the presence of which is generally regarded as a contraindication to this mode of therapy.

C. S. R.

[28] **The use of tryparsamide in neurosyphilis.**—Sidney I. Schwab and Lee D. Cady. *Amer. Jour. of Syph.*, 1927, xi, 1.

The authors have used tryparsamide both alone and in conjunction with mercury, bismuth or other arsenical preparations and have found that it is of more value in neurosyphilis than any of the older drugs. They consider that

the results obtained by its use in general paralysis are even superior to those following malarial treatment. Sixty-three patients suffering from general paralysis were treated with tryparsamide. Of these 61 were not working at the beginning of treatment and only 25 were unable to return to work after treatment, whereas 21 were able to work full time. The best results were obtained in early cases, 82 per cent. of which showed clinical and 66 per cent. serological improvement. The drug proved efficacious also in cases of tabes and of cerebrospinal syphilis, but the difference between the results of treatment by tryparsamide and those obtained by other drugs was not so striking in these diseases as in general paralysis.

J. G. GREENFIELD.

[29] **The treatment of general paralysis by tryparsamide.**—M. BROWN and A. R. MARTIN. *Jour. of Ment. Sci.*, 1927, lxxiii, 225.

IN dealing with the treatment of general paralytics, there are certain factors always to be borne in mind. These are: (1) The possible tonic effect of arsenic, resulting in general improvement; (2) the beneficial effect of arsenic in certain meningeal complications which frequently accompany paresis; (3) the possibility of paretic serum and cerebrospinal fluid undergoing in themselves marked variations; (4) the tendency to remissions. Taking these into consideration, and in view of the limited number of cases which were under observation, it is extremely difficult to come to any definite conclusion. As, however, only one course of treatment has been tried, and as the improvement which took place in the majority of cases has now held for over six months, it is considered that these clinical results together with the coincidental laboratory findings are of sufficient import to justify further investigations along similar lines. The most significant features in the writers' cases were: (*a*) Disappearance of the psychoses; (*b*) increase in weight; (*c*) absence of seizures; (*d*) the conversion of dull, listless patients into useful units.

In view of the general consensus of opinion, it would appear that a preliminary course of tryparsamide followed by malarial injection is at present the most rational method of treatment, particularly in the debilitated type of early paretic.

C. S. R.

Psychopathology.

PSYCHOLOGY.

[30] **Pleasure, pain and conation.**—WILLIAM MCDOUGALL. *Brit. Jour. of Psychol.*, 1927, xvii, 171.

THROUGHOUT the nineteenth century psychological hedonism has held great sway. A large number of psychologists have adopted a strictly mechanistic view of mental life and behaviour which finds no place for pleasure and pains or at least assigns to them no role. Many of those who are not strict mechanists, continue to accept hedonism and many combine it in various ways with the hormic theory. In this paper there is an attempt to show that a purely hormic theory is tenable. The superiority of the hormic principle to the hedonic in face of the major types of activity is briefly pointed out. Pleasure and unpleasure tend essentially to be correlated with the attainment or progress towards attainment and the thwarting of such attainment, respectively. It is only the lower æsthetic feelings, or the feelings that accompany simple or crude sense-impressions, that present difficulty for the hormic theory and give plausibility to the hedonic theory. Pain-sensation *seems* to be intrinsically unpleasant; the same *seems* to be true of certain odours and tastes, while some tastes and odours, some contacts and tones, *seem* to be intrinsically pleasant. On reflection clear evidence is found that some of these instances conform to the hormic rather than to the hedonic principle. McDougall submits that the taste of sugar is pleasant only in so far as it promotes, renders more intense and effective, the conative impulse to consume food. As soon as satiety is reached the sweet taste of sugar becomes unpleasant. The enjoyment, which in the language of false abstraction we describe by saying that an element of pleasure is added to the element of sweetness, is a qualification of the whole activity of eating the sugar. And the truth is that the enjoyment depends upon, is conditioned by, is a function of, not the quality of sweetness, but the intensity of the conative process. The same fact seems to be clearly illustrated by stimulation of the specifically sexual areas of the skin. In so far as the sex impulse is aroused and operative, such stimulations are pleasant in high degree; for they accentuate or intensify the impulse and promote the whole train of activity. But if and when there is no sexual appetite and the sex impulse is latent simular stimulations have no pleasurable effects. Pain-sensation immediately evokes the impulse to withdraw, and in so far as this impulse immediately attains its goal, the total process is not unpleasant. It is when the aversion, the impulse to withdraw, fails to terminate the sense-stimulation, that the process becomes unpleasant or painful in the true sense. One might go further and say that the aversion evoked by 'pain-sensation' is the conative impulse of fear. Pathology affords support for the same view, in cases of neurotic pain localized in various bodily organs. Here we have indisputable instances in which pain localized in the body is due to no stimulation applied

to sense organs or nerves, but rather to the conflict of strong conative tendencies, the pain of the conflict being projected upon some bodily organ, for reasons which in some cases remain obscure but which in others can be assigned. The writer comes to similar conclusions with regard to other sense-impressions such as odour and tone. It is thought that the prevalence of the hedonist view is largely due to the fact that feeling is always insistent in consciousness, is not easily overlooked, whereas conative experience is very little differentiated and always obscure to introspection, so obscure that the majority of psychologists overlook it completely, if they do not positively deny it. And this is especially true of the lower and simpler forms of conation, those involved in the simpler acts of sense-perception.

C. S. R.

[31] **A review of industrial psychology.**—MANDEL SHERMAN. *Amer. Jour. Psychiat.*, 1927, vi, 701.

THE method of investigation which is proving most productive of results, and which is used extensively, is the type of procedure first introduced and emphasized by the mental hygienists and psychoanalysts. The individual is studied not only from the standpoint of the situation in which he is found at work, but also from the standpoint of the possibility of the development of conflicts at any time in his life. Such studies have been profoundly helpful because of the fact that the analysis of the individual in his working environment has often produced little evidence tending to explain the maladjustment, whereas, on the other hand, the study of the individual's life in his social sphere outside of the factory or office has more often determined the basis for the particular difficulties. Another method is the purely psychoanalytic. The problem of vocational guidance is then regarded as fundamental in the study of industrial relations. Stekel in attempting to explain the reason for a choice of a vocation makes the following classification of etiological groups:—(1) those who have developed identification with the father; (2) those who have differentiated from the father; (3) The sublimation group which includes the following sub-groups: (*a*) those with sado-masochistic tendencies; (*b*) the exhibitionist group; (*c*) the group involving a predominance of curiosity; (*d*) the anal-erotic group; (*e*) the choice of an occupation as a protection against unconscious tendencies.

Pratt divides men in industry into four groups: the feebleminded, the individuals who are " superior " to the job, the psychopaths, and the psychotic. Some attempts have been made at classifying individuals on the basis of the apparent emotional ' make-up.' Maladjusted individuals in industry are then classified according to the affective factors which tend to conflict with the demands of the job. Pruette and Fryer make two classes: the repressed, and the elated. In this type of classification it is again evident that the criteria for the distinction between the two groups and between the two types and the

normal are mostly based upon subjective methods. In analysing the various methods of industrial psychiatry it is evident that the procedure which has been most successful in readjusting individuals has been the one which attempts to analyse the 'total' situation. By the 'total' situation is meant the early life history, the social situation, the adjustment at home and elsewhere, the motives and incentives, and so on, in addition to the immediate difficulties at work.

C. S. R.

[32] **Recent investigations on visual imagery, with special reference to hallucinations.**—T. H. PEAR. *Jour. of Ment. Sci.*, 1927, lxxiii, 195.

THERE was and is still a tendency to regard visual imagery as a unitary subject, but visualizers can be divided into many sub-classes. Their imagery may be separately classed according to its clearness, vividness, obtrusiveness, relevance, readiness, utility, etc. These important divisions are necessary to classify true images of events which have occurred more than (say) a day ago. Such images, to use a modern expression, show distinct 'structuration' round a nucleus of interest. For the clinician there is another important criterion of difference between images. One may be able to picture things in detail, yet, seldom or never, is one of these visual images mistaken for reality. Under certain conditions many of us mistake, however, these for reality. One class of normal image, while still seeming to us a product of our own mind, is apparently projected outside ourselves. Some people before going to sleep see such images (hypnagogic), and it is important for any theory of the function of imagery that these sometimes appear to be unconnected with the person's everyday life. They seem irrelevant. An important psychiatric question is why in everyday life there is a clear-cut distinction between visual perception and visual imagery. Usually they are interdependent but in the illusion intermingled. Our visual perceptions are often interfered with, not by past knowledge, but by actual sensations resulting from recent experiences. Recent research has shown that after-sensations are more numerous and varied than was supposed. But it is important to remember that the after-sensation of vision is a real sensation, not an image. A form of visual memory which is neither after-sensation nor ordinary visual image is called the 'eidetic' image. It is a special kind of memory of an object, which some people experience after the object has been removed. It is not ordinary memory, for details which were not observed during perception are said to appear after the object has been removed. Lastly, there are the hallucination (an image of memory mistaken for a percept) and the true memory image. While the after-sensation and the 'eidetic' are bridges between perception and memory, in the true memory image there is often a striking selection and working-up of the details originally seen. The 'eidetic' image is related, in ways probably unappreciated at present, to pseudo-hallucination. In Germany 'eidetic' imagery was first found in school-

children, and is comparatively rare in the normal adult person. In America the adults who have this imagery were often described by others as "queer." In children after 14 this tendency recedes. There is no doubt that the 'eidetic' image exists, that it is associated with childhood, and that it occurs in adults who have retained a peculiarity of mind from childhood. Its relation to pseudo-hallucination is important. Other problems which arise are whether the difference between the pseudo-hallucination of the psychoneurotic and the complete hallucination of the psychotic is greater than was formerly thought. These 'eidetic' images may occur when the mind regresses to a more childish state, and it may be that in the production of our dreams and of the images we see before sleeping, our mind has reverted in this way. It may be that the artist, the poet and the seer are seeing reality, not so much in a new way, as in a development of old ways which our particular type of civilization has discouraged.

C. S. R.

[33] **The function of clothing and of bodily adornment.**—H. C. Sanborn. *Amer. Jour. Psychol.*, 1927, xxxviii, 1.

The view that clothing is a sign of modesty is very old and seems to suggest that the feeling of shame is an acquired habit. With some investigators the first use of clothing is put down to coquetry and exhibitionism instead of natural shame. Westermarck traces the origin to several different sources. There is the desire to protect the body from cold and damp; in Mohammedan countries the veiling of the face and pudenda is a protection against the evil eye: in others it is against the attacks of insects or injury. The pubic covering he thinks originally was a sexual lure. Schurtz, Ratzel, and Wundt regard it as the result of natural shame. Von Schleinitz concludes that it originated in protection against the exigencies of climate and perhaps in the impulse to adorn the body. Modesty developed from wearing clothes for a long period. Peschel traces clothing to æsthetic motives. Protection from cold, however, is not needed for tropical races, where the natives do not regard them as such. The close relationship between clothing and sex is revealed by the fact that all important events of sex life go hand in hand with change in dress. In many cases clothing symbolizes the married state. The primary cause for the initial stages of clothes may be the jealousy of the male. Clothing may come to be worn behind instead of in front by tribes living in huts into which they must crawl. Inhabitants of the desert may come to transfer the feeling of modesty to the exposure of the face, which was veiled originally to prevent thirst. Real garments may be symbolized by ornaments, and painting, tattooing, oiling and greasing the body may have a similar meaning. Under the impulse to adorn the body, clothing becomes a sign of wealth. The removal of clothing in the presence of a superior meant that there must be not any concealment from the master. From this has come our present custom of removing the hat

in greeting a person. Ernst Grosse supports Westermarck when he affirms that ornament antedates clothing. The fact that the covering of the pudenda is not universal and not adequate, together with the further fact that our children have no natural shame, seems to him proof that the theory commonly accepted by anthropologists is false. Both Lotze and Selenka dwell upon the developing effect of ornamentation upon the wearer, enhancing his self-feeling, influencing his moods, and modifying his behaviour. One motive for the initial assumption of clothing is suggested by the fact that savages knock out, file, blacken their teeth, on the testimony of many investigators, in order to distinguish themselves as sharply as possible from certain lower animals. Painting the body and dressing the hair may have a similar impulse. An objection to this is that some savages tattoo themselves and otherwise endeavour to assimilate themselves to their own totemic animals. Clothing for the modern man aims to be practical and for the male has largely ceased to be æsthetic. Woman is also tending in this direction.

C. S. R.

[34] **An experimental study of a repetitive process.**—S. WYATT. *Brit. Jour. of Psychol.*, 1927, xvii, 192.

IN connection with an investigation on repetition work carried out in a soap factory, an attempt was made to determine the degree of dependence between working efficiency and the amount of intelligence possessed by the operatives. The results obtained from the particular group of workers considered here show that: (1) the amount of intelligence possessed by an operative is practically no indication of his or her efficiency as a worker in a simple repetitive process; (2) the results of manual tests involving speed and dexterity of movement fail to give any correlation with efficiency in soap wrapping; (3) the experience of boredom appears to be slightly dependent upon the degree of intelligence possessed by the operatives; (4) variations in the rate of working are most noticeable in the case of the more intelligent operatives; (5) in general, variety in the form of activity and posture is preferred to uniformity in the industrial process; (6) operatives are able to adapt themselves with a fair degree of success to repetitive conditions which, at the outset, may be productive of boredom and strain.

C. S. R.

NEUROSES AND PSYCHONEUROSES.

[35] **An anomaly of mood producing invalidism** (Eine invalidisierende Stimmungsanomalie; Psychopathia tristo-morosa).—CARL JORGENSEN. *Allg. Zeits. f. Psychiat.*, 1927, lxxxvi, 66.

THIS is the history of a woman who for twenty years has suffered from a mental illness rendering her an invalid and dependent on the community, in which the degree of incapacity has seemed out of proportion to the severity of the

mental symptoms. At no time had she ever any delusions, hallucinations, or stuporose states, her intelligence is normal, and no serious physical illness has occurred, yet she has had a combination of trifling symptoms which, taken as a whole, have made her incapable of independent existence. Up to the age of 19 she was normal, bright and hard-working. At this time her fiancé went abroad, and she became very depressed and made an attempt at suicide. She was in a mental hospital for two-and-a-half years, diagnosed as a case of hysterical psychosis, but details of her illness are not known. She then spent one-and-a-half years with relatives, always under treatment, and finally was found to be too much trouble and was again sent to a hospital. There she would sit about all day, never occupy herself, but did as she was told and was quite clear and orientated, and slept and ate well. She remained there three years. When she was to be sent to a mental hospital her relatives again took her home. She had at times a hysterical inability to walk and used crutches, and later would lie in bed all day, do no work, and was so helpless that she was sent to a home for invalids. After two years here she was sent away as behaving badly, capable of light work but unwilling, apathetic but not seriously depressed. A hysterical paraplegia had soon cleared up. Since 1917 she has been in the hospital, with occasional removal to a mental ward when troublesome or restless and noisy. Usually she remains in the section for better patients who do a little work and have parole, but she does little. At times she spends a few months in the invalid section, with occasional complaints of a hysterical type. She shows a slight degree of physical disability, slightly enlarged heart, general asthenia, labile pulse, and a tendency to colds, but nothing sufficient to make her incapable of normal life. Her complaints are chiefly headache, pains and tingling sensations, and a feeling of fatigue. She is sensitive, irritable, easily upset and depressed, and has made several attempts at suicide; she has a tendency to magnify trifles, and her over-sensitivity to slights and depression are greatest just before her menstrual periods. She is irritable and flies into tempers, at times scratching and biting, and resents control and authority. She is constantly complaining of her treatment or lack thereof, as the case may be: will spit out her medicine if she does not want it, says she is a martyr to the ignorance and brutality of the doctors, and quarrels with the other patients. Anger and depression are the emotions which are provoked in her with unusual ease, and her occasional ideas of persecution have shown no tendency to become systematised nor have they really amounted to delusions. No schizophrenic tendencies have been shown.

Thus without showing any definite psychosis, her exceptional emotional constitution explains her invalidism. She reacts excessively with anger or depression to trifling traumata which normal people can endure, but which call up in her such effects as to incapacitate her for normal life. She is in no sense feebleminded, her thought processes are not inconsequent, but she is emotionally uncontrolled. In many cases chance decides whether such characters land in a mental hospital or a prison. She is not really psychotic,

and in spite of her occasional depression she has never shown retardation. It is as though she had never recovered from her first psychogenic depression, but fallen into an apathetic, dependent, injured attitude which has become her habitual mental outlook. The author does not regard her as a case of hysterical psychosis, for her hysterical symptoms have been transient and easily cured, while her emotional instability is, in the author's view, rather the development of a constitutional psychopathic degeneration, which he would call psychopathia tristo-morosa.

M. R. B.

[36] **A study of the personality make-up and social settings of fifty jealous children.**—Sybil Foster. *Mental Hygiene*, 1927, xi, 53.

The author concludes from her data that the jealous child is more often a girl between three and four, frequently the eldest child. In make-up she is likely to be independent and selfish, pugnacious, demanding of attention and resorting to various means to obtain it. Often she shows undue attachment to one parent and is subject to mild neurotic fears. She is seldom a day dreamer, is frequently troubled by disturbances of sleep, food capriciousness, and enuresis, and often destructive and hyperactive, leading playmates in some instances, with play opportunities generally limited and little chance for social relationships. The usual environment seems to be a fair home, lacking in training and discipline, often showing favouritism and neurotic parents. Physical punishment is used in an effort to obtain discipline, and the child is not infrequently subjected to teasing. The author thinks that the average child in the clinic is of extraverted 'make-up,' and that the jealous child has the same 'make-up,' but accentuated and exaggerated. With this active domineering child placed in an environment that offers little in the way of intelligent training and guidance and limited play opportunities, often thrust aside in the family group by the advent of another child, with little attempt made to help him meet this situation, there is no cause for wonder when jealousy arises.

Between the ages of one and five a passing jealousy is probably a normal thing. The little child craves attention, and on the advent of a younger one, the parents' love has to be shared. The adjustment should, however, soon be made, as the child finds that the new brother or sister does not deprive him of the mother's love. Frequently the passing jealousy may, through accidental or deliberate fostering, become fixed; if so, the child is headed for difficulty. We are led to feel that jealousy is not an 'inborn' trait, but is in general the natural product of the environmental situation in which it is the child's misfortune to be placed.

C. S. R.

PSYCHOSES.

[37] **The biogenesis of paranoia from the standpoint of modern cerebral physiology** (Ueber die Biogenese der Paranoia vom Standpunkt der moderne Grosshirn-Physiologie).—A. G. IWANOV-SMOLENSKY. *Allg. Zeits. f. Psychiat.*, 1926, lxxxv, 240.

THIS is an attempt to analyse paranoia on the basis of conditioned and unconditioned reflexes, and to find its "pathobiogenesis."

The conduct of the paranoiac is distinguished by the exaggeration of the reaction of self-preservation having the character of an active defence, and consists of morbid expression in speech (delusions) and pathological behaviour, which bear witness to a weakening of inhibitions conditioned by social and ethical training.

The reflex-forming activity of the cerebrum, which consists in biosocial adaptation to environmental stimuli, is disordered in the direction of a hyperproduction and freeing from inhibition of the conditioned reflexes of defence. These become excessively generalised, are inadequately differentiated, and tend to be abnormally readily linked together (chain reflexes), while having great resistive capacity.

This special inadequacy of intercerebral inhibition and differentiation, with a partial overstimulation of the cortex, can be explained by assuming a constant focus of dominating excitement in the large hemispheres, which draws towards itself by force of a "functional neurobiotaxis" all weaker exteroceptive stimuli, and through which all fresh reactions of self-defence (conditioned reflexes) are shunted.

The cause of the formation and unusual resistive capacity of this focus of excitement in the cortex is rooted in chronic, often in intermittent proprioceptive stimuli, which are sent from the lower centres preserving phylogenetic experience, i.e., the subcortical centre for the complicated *unconditioned* reflex or instinct of self-defence, and the increased activity of this centre is probably connected with the biochemical constitution of the blood. This constitutes the pathological disposition of the paranoid character. Where the ontogenetic capacity of the cerebrum to deal with this over-stimulation by forming *conditioned* reflexes and inhibitions is sufficient, we may have a prominent military, political or religious leader, provided adaptation to reality is maintained. In the paranoiac this cortical compensation fails and the unconditioned defence response is paramount. This may be due to faulty training, difficult biosocial conditions of life, involution with increased activity of the instinctive centre, or failure from physical causes of higher control, so that regression occurs to the primitive stage of phylogenetic development, in which such a state of chronic active defence was suited to the constant struggle for existence.

This does not mean that psychological theories about paranoia are unimportant, but merely tries to give them an underlying basis of cerebral neurophysiology.

M. R. B.

[38] **Affective experiences in early schizophrenia.**—HARRY STACK SULLIVAN. *Amer. Jour. Psychiat.*, 1927, vi, 467.

IT has appeared from crude observation and from detailed study of the facial expression that the alleged indifference, apathy, and emotional disharmony of the schizophrenic is more a matter of impression than a correct evaluation of the inner experience of such a patient. It has followed that the study of such inner affective experience by positive, objective means seems urgently indicated if the nature of the schizophrenic processes is to be elucidated. Attempts along this line do not seem to have reached valid results, owing largely to the susceptibility of these alleged indifferent, inattentive patients to seriously disturbing delusional reactions. To prevent grave interference by these, considerable variation from ordinary psychological technique is required. Elaboration of apparatus and technique should be undertaken to the end that study of the final movements and tonic postures of the facial muscles (particularly of the perioral group) may be correlated absolutely in time with alterations in the electrical conductivity of the body—the psychogalvanic response. In addition, one may supplement these records with phonograms in some cases, with pulse tracings in some, and perhaps with respiratory records. Fluoroscope observation of visceral tone may also be correlated in this fashion. One must reduce distracting factors, as well as indefiniteness concerning the actual time of stimulus reception, and more particularly insure the integrity and simplicity of sentience 'conveyed' to the subject, for instance, to use of purely visual stimulus-situations in place of the verbal and the autochthonous.

C. S. R.

[39] **Constitutional psychological factors in "functional" psychoses.**—1. Manic-Depressive Insanity:—H. LUNDHOLM. *Jour. Nerv Ment. Dis.*, 1926, lxiv, 125.

ADOPTING the suggestion of McDougall as to an instinctive basis for the phases of cyclothymic reactions, the author elaborates this on a basis of constitutional tendencies: (1) manic, 'altro-centric' tendencies; (2) 'extrospective,' 'extroactive' and sympathetic (altruistic), and depressive, egocentric tendencies; (3) introspective, seclusive and egotistic tendencies. A decidedly interesting speculation.

R. G. G.

[40] **Some factors which determine a schizophrenic (dementia præcox) reaction in males : a contribution to the study of human behaviour.**—Oswald H. Boltz. *Jour. Nerv. Ment. Dis.*, 1926, lxiv, 456.

Sixteen cases are discussed from the psychoanalytic point of view, and from a study of these the author feels justified in concluding that schizophrenia usually has a definite precipitating factor or situation which has psychological significance to complexes in a state of repression in the unconscious ; such a precipitating factor, occurring in the outer world, may be an actual situation related to repressed ideas and impulses (*e.g.*, advances by a homosexual) or a symbolic situation of some sort with direct or indirect relation to such repressed material. The author believes that a homosexual setting in the environment is the commonest precipitating cause of schizophrenia in males.

R. G. G.

[41] **The part of conduct disorders in the concept of constitutional psychopathic inferiority.**—J. H. Huddleson. *Jour. Nerv. Ment. Dis.*, 1926, lxiv, 151.

Disorders of conduct are becoming relatively more prominent in the symptomatology of constitutional psychopathic inferiority as at present understood. Their prophylaxis and treatment, like those of any other symptoms, constitute a neuropsychiatric problem.

Restraint or other legal penalty is a form of suggestion or counter-suggestion and should be considered as such by neuropsychiatrists in estimating its desirability along with other methods of medicinal or surgical treatment in any given case.

R. G. G.

[42] **The blood-sugar curve in cases of dementia præcox.**—J. Forest Smith and H. Gardiner Hill. *Jour. of Ment. Sci.*, 1927, lxxiii, 265.

These observers found that the blood-sugar curves in ten cases of dementia praecox were low and the administration of thyroid and pituitary extracts had the effect of heightening the curve.

C. S. R.

[43] **Extrapyramidal syndromes in mental diseases** (Les syndromes extrapyramidaux dans les maladies mentales).—H. Steck. *Arch. Suisses de neurol. et de psychiat.*, 1926, xix, 195.

This is a long and well-documented paper, which should be consulted in the original by all who are interested in the somatic symptoms of mental cases. It is difficult to summarise conveniently the wealth of clinicopathological examinations here conducted in great detail. Some of the author's general conclusions, however, may be indicated,

It is contended that the motor extrapyramidal syndrome forms a part of the symptomatology in nearly all the psychoses. Hyperkinetic and akinetic syndromes alike may be met with, in cases of catatonia, general paralysis, senile or arteriopathic dementia, epileptic psychoses, acute confusional conditions, etc. The syndrome is due to a congenital defect in oligophrenia, to an acquired organic defect in the organic dementias and in some cases of catatonia, to a functional impairment in manic-depressive psychosis, hysteria, and sometimes also in dementia præcox and epilepsy. It may arise either directly or from the effect of diaschisis.

The site of the lesions bringing about the syndrome is, generally speaking, at any level or division in the fronto-ponto-opto-strio-rubro-cerebellar system.

A suggested provisional allocation of the complex syndrome of catatonia is given as follows: (1) vegetative symptoms (trophic, vascular, secretory, thermogenetic, etc.)—transient or permanent lesions of the vegetative centres of the neuraxis. (2) Motor symptoms (akinesis, bradykinesis, hyperkinesis, parakinesis, catalepsy, flexibilitas cerea, etc.)—lesions of the above-mentioned fronto-ponto-strio-cerebellar system. (3) Sensorial symptoms (cœnæsthetic and hallucinatory symptoms)—cortical and subcortical lesions. (4) Other psychical symptoms (stupor, motor obsessions, iteration, verbigeration, palilalia) can be ascribed to secondary effects of lesions as under (2) above. Still others (stereotyped acts, automatism, impulsions, 'echo phenomena,' etc.), result from a combined cortico-basal impairment. Symptoms referable to speech are cortical, as are others of a psychomotor class (negativism, 'mannerisms,' dissociation, schizophasia, etc.).

Doubtless not a little of this analysis appears somewhat schematic, and most of it is based on the idea that clinical symptoms and pathological findings are directly interrelated; but however much it may be criticised in detail it certainly represents a general thesis for which there is a great deal to be said by way of evidential support. The bibliography attached is unusually rich and wide-ranging.

J. S. P.

[44] **The racial prospect of general paralysis.**—Leo Kanner. *Amer. Jour. of Syph.*, 1927, xi, 23.

The problem of the increase and decline of general paralysis among races infected with syphilis is of the greatest interest and importance. It was studied by Kraepelin in 1925, and Kanner has continued to collect evidence along the same lines. From the evidence available Kraepelin deduced that after a race had been infected with syphilis for a long time, probably 200 years at least, general paralysis began to appear in it, and after a further period, which may be something over a century, it tended to disappear. The facts on which this hypothesis is based are the following. Syphilis became widespread in Europe after the siege of Naples in 1492 (?) but the first cases of

general paralysis (if we exclude a case reported by Willis in 1670 of paralysis in a mental patient) were not reported till the end of the eighteenth century. In the nineteenth century general paralysis became rife and assumed a stereotyped form, but since 1890 it has in most European countries changed its character and become less frequent. Of this diminished incidence not only in respect to the population as a whole, but also in respect to those infected with syphilis the Austrian statistics afford very striking evidence. The statistics from England, France and Germany also point in the same direction. General paralysis is now rare in South Italy and Spain and appears to be steadily decreasing there. In Sweden, however, it is increasing. It is probable that Sweden was scarcely infected with syphilis until the time of Gustavus Adolphus, and is therefore a century or more behind western Europe.

In America the facts appear at first rather contradictory. As a whole, general paralysis appears to be increasing throughout most of the United States, but this increase is most noticeable in the negro population. Although about twenty years ago paresis was a great rarity among North American negroes, it is now more prevalent among them than among the white population. On the other hand, negroes coming from Africa to Brazil are not susceptible to paresis, whereas those whose families have lived there for several generations acquire the disease. Among North American Indians general paralysis is exceedingly rare and appears to be disappearing completely, but it is common among Mexican, Central American and South American Indians. In Africa, except in the countries along the Mediterranean coast, the disease is practically unknown, although syphilis is rife. In Japan general paralysis was rare at the beginning of the century, but is now as common as in Europe. Among the Chinese, however, it is still uncommon.

It appears from these statistics that a hypothesis of racial predisposition is insufficient to account for the facts, as negroes in one country are immune while in another they are extremely prone to acquire paresis. The theory of Kraepelin that the spread of lues gradually generates in a race those conditions which make possible the establishment of paresis, appears to agree with the facts, if we assume that the North American Indians were infected long before those of Central and South America On this hypothesis it seems probable that general paralysis will continue to decrease in Western Europe, while it will increase among the coloured populations of the world.

J. G. GREENFIELD.

PSYCHOPATHOLOGY.

[45] **Tests of moral sense in adolescents** (Moralprüfungen bei Jugendlichen).—RUDOLF ROSNER. *Allg. Zeits. f. Psychiat.*, 1927, lxxxvi, 91.

THE development of interest in the welfare of the young has led to a need for some routine tests of a simple kind which will throw light on their mental life to guide the choice of their disposal and training. Suggestions made by

many authors have the defect that they depend on question and answer, making the examination lack objectivity. Jakobsohn has suggested a method in which the examinee is given seven printed slips, containing descriptions of delinquencies and crimes which are graded according to the object of the injury done, its motive, and the mental attitude of the doer. The examinee is given these, asked to read them carefully, arrange them in order of severity, as he regards them, and to give his reasons for his opinion about how serious each is. Thus the personal feeling of the examiner is ruled out and the test made more objective.

The author has used this method for 122 cases in an institution for feeble-minded and psychopathic young people including delinquents, as well as trying it in normal school-children as controls. The exact tests are given in full. The crimes range from petty theft and disobedience, to robbery with murder, the doers being children and adolescents.

He finds that he cannot agree with Jakobsohn in laying down, on a basis of the tests, a definite standard of normal and abnormal grades; but the tests are of value in giving psychologically interesting results. He classifies these into four groups: (1) those who estimate a crime only by the external circumstances; (2) those who consider also the motive of the action; (3) those who put themselves in the position of the doer and attend chiefly to his mental outlook, and (4) those who take into account even the most trifling and apparently insignificant elements bearing on the misdeeds.

He finds that the moral orientation was chiefly dependent on the previous history and upbringing of the youth. He further emphasises that we must distinguish between intellectual judgment of moral values and moral conduct in practice, and that, again differing from Jakobsohn, intellectual and moral developments to some extent do run parallel; though a feebleminded person may act correctly automatically, as the result of moral training, he is far from appreciating intellectually the morality of the conduct of others, whereas a person of normal intellect may have learnt to judge in the abstract perfectly and arrange the tests intelligently, yet not regulate his own conduct in accordance with his judgment.

Selected cases are given in some detail to illustrate its use. He concludes that it is of value only in young people of normal intelligence or high grades of feeblemindedness, and over 14 years, while in those over 16 there is apt to be a discrepancy between acquired theoretical moral values and actual conduct. It is of value as an extension of intelligence testing, especially in estimating the capacity for judgment in adults in whom an ordinary intelligence test gives unsatisfactory data about their mental capacity; but it gives only an inadequate reflection of the sense of moral values and probable conduct, and cannot replace prolonged observation in an institution as an aid to deciding the requirements of the young individual.

M. R. B.

[46] **Observations and remarks on the physical constitution of female psychiatric patients.**—F. I. Wertheimer and Florence E. Hesketh. *Amer. Jour. Psychiat.*, 1927, vi, 499.

In a series of 31 female psychiatric patients the anthropometric values expressing the trunk-volume—limb-length proportion corresponded with the visual impression of body types, the pyknic type showing low values, the asthenic type high values. The averages and range of variations of the anthropometric value of this index are markedly higher in women than in men (31 cases as compared with 65 cases). No influence of the age factor on the index is indicated. No dysplastic signs occur in the clear manic-depressive cases. There are lipodystrophic forms of habitus with two characteristic types of fat distribution: (1) with obesity above the waistline and thinness below; (2) with obesity below the waistline and thinness above. These characteristic forms, in which the contrast in regional fat distribution is striking, are not infrequent and seem to be allied to the clinical syndrome known as lipodystrophia progressiva. It is doubtful whether these conditions should be classed as dysplastic in the sense of Kretschmer. Altogether, the recognition of body types in women is more complicated than in men, and a perfection of technique and more clarity in type diagnosis will be necessary before exact biometric methods can be applied to the problem of correlation with nosological types.

C. S. R.

[47] **Mental deficiency and the psychiatrist.**—Howard W. Potter. *Amer. Jour. Psychiat.*, 1927, vi, 691.

Mental deficiency is a social condition, not a pathological entity *per se*. As a social condition its chief characteristic is a state of limited potentiality or arrest of the development of intelligence, as a result of which the individual does not possess a progressive adaptability to a degree sufficient for social and economic adequacy. The keynote of this definition is "Progressive adaptability." Inadequate progressive adaptability must be attributable to a defect in the development of intelligence and occurring therefore in the developmental period of life. Temporary lapses of intelligence secondary to somatic, psychic, or environmental factors should be designated rather as mental retardation. The whole matter of prognosis and treatment hinges thereon. Diagnosis must follow an anamnesis, a careful physical examination, and psychometric tests. Intelligence tests are useful and valuable adjuncts to psychiatric diagnosis, but are to be used with discretion. The I.Q. should never be used without the clinical examination.

The author formulates the following groups: A very small group comprises cases of true chromosome defects; a fairly large group is the familial, from heredity; a third embraces instances of congenital endocrine dysfunctions in the offspring of mentally normal parents; a fourth comprises those accidents involving the central nervous system of the patient following mechanical

trauma, infection or toxæmia and occurring during the developmental period ; a possible fifth is the psychogenic group. With regard to the last a suggestion is offered that in certain instances there may be such an overwhelming narcissism in the infant as to prevent the outflow and onflow of that portion of the libido which perhaps furnishes at least a part of the ' urge ' needed for the development of intelligence and as a result the intelligence becomes fixed at an incomplete level of development.

C. S. R.

[48] **A study of lues among mental defectives.**—Frank R. Hall. *Amer. Jour. of Syph.*, 1926, x, 563.

This is a statistical study of the relationship of syphilis to mental deficiency. All the boys at the Rome State School during the years 1915 to 1925 were tested by the Wassermann reaction, and 43 or 1.15 per cent. gave a positive reaction. This agrees fairly closely with the figures of London cases given by Tredgold (2.5 per cent.) and by Fletcher Beach (1.17 per cent.). In the Wassermann positive cases of the present series interstitial keratitis was common.

J. G. Greenfield.

[49] **The hæmoclastic crisis in mental defectives.**—W. Rees Thomas and W. J. Lascelles. *Jour. of Ment. Sci.*, 1927, lxxiii, 246.

The almost constant numerical and differential blood changes and the uniformity of results in the same patient show that the hæmoclastic crisis is a real blood change and is not accidental. In the present state of our knowledge it may be said that the test can be used in confirmation of the clinical diagnosis, but is not sufficiently constant to justify its adoption as a separate diagnostic test. The leucocytic count during two hours of physiological rest is not constant, but tends to show a gradual rise, which has, however, no influence on the character of the reaction. It is evident that reference to liver function does not afford an explanation of the blood phenomena. The reaction is a general one and is not confined to the capillaries. The effect of the administration of adrenalin and thyroid was to cause a reversal of the action with milk in cases which previously gave a marked leucopenia. No such reversal occurred with these drugs in cases which had given a leucocytosis after milk. Atropine caused a leucocytosis 10 minutes after injection in 10 patients who previously gave an abnormal reaction to milk. This leucocytosis quickly fell to normal, and the remainder of the curve over two hours followed fairly closely the normal hunger curve.

C. S. R.

[50] **Some observations on the study of the blood-pressure in the insane.**—G. G. Parkin. *Jour. of Ment. Sci.*, 1927, lxxiii, 240.

An investigation was made to see what results would be obtained from an examination of the blood-pressure of the insane if the observations were classified

in a more detailed manner than those of other writers on the subject. There was no attempt at selection. The total number of observations made was 1,338, of which 679 were on 115 male patients, 485 were on 114 female patients, 81 were on 27 male nurses, and 93 were on 31 female nurses, the last two groups being taken for purposes of comparison. Classified according to forms of mental disease the numbers of patients examined were: Manic-depressive insanity 28, melancholia 33, senile melancholia 7, confusional insanity 16, delusional insanity 21, imbecility 11, imbecility with epilepsy 11, dementia præcox 36, terminal or secondary dementia 6, senile dementia 10, general paralysis of the insane 33, insanity with epilepsy 17. Taken as a whole the observations indicated that in all forms of mental disease, recent emotional reaction was the main cause of increases of the systolic blood pressure; the sooner the observation was made after the commencement of the excitement or agitation the more marked the rise, which, however, was transient; if the excitement or agitation were prolonged there would be a fall in the S. P. Tables given illustrate the procedure followed in each form of mental disease and give particulars of the observations in manic-depressive insanity and in melancholia, showing the variations of S.P. and D.P. in the different mental states; also the further variations when recent excitement and agitation were neglected and cardiovascular and renal cases were eliminated. A comparison of the results obtained in dementia præcox with those of Gibson and Dawson showed approximate agreement in respect of the S.P. There was, however, a considerable divergence in the diastolic pressures found by Dawson, which were stated to have been between 55 and 65 mm. in all cases, whereas in these figures the average D.P. was much higher. In katatonia, 2 males and 1 female showed a rise in the S.P., sometimes slight, but always definite when the katatonic rigidly became more pronounced. In general paralysis readings taken shortly after convulsions showed the S.P. to be raised. In 1 male the S.P. in a quiet state was 146, and after a restless period of 6 days, 132. Twenty minutes after a convulsion the S.P. was 170, in 1 hour 40 minutes after the convulsion it had fallen to 150, and in 2 hours 50 minutes to 130, the D.P. reading in the meantime falling between the first and last observation after the convulsion from 110 to 78. In general paralysis 60 observations were made on patients undergoing malarial treatment. When there was a rise in temperature there was a fall in both the S.P. and D.P. In the nurses the tendency for emotional reaction at the time of observation to cause a rise in S.P. was shown in some instances.

C. S. R.

[51] **An investigation into the fragility and solubility of the red blood-cells in mental disease.**—MARGARET SCORESBY-JACKSON. *Jour. of Ment. Sci.*, 1927, lxxiii, 257.

FIFTY-FIVE per cent. of cases gave results which are outside normal limits. Cases in which the hæmolytic point was markedly raised or lowered presented

no sign of any definite physical lesion. There was no marked difference in the ratio of fragility between cases having drugs and those having none. As to the solubility of the red blood-cells in sodium taurocholate, out of 64 cases tested, 40 were approximately normal, while 24 showed increased solubility. In view of the findings of other observers as to the association between the characteristics of the red blood-cell and general metabolic disturbance, the high percentage of abnormal results indicates strongly the general association of mental disease with fundamental physiological changes throughout the organism.

C. S. R.

[52] **A biochemical study of the blood and urine in mental disorders.**—B. REID. *Jour. of Ment. Sci.*, 1927, lxxiii, 254.

No abnormality in the results of the Van den Bergh test, the fasting blood-sugar, the lipase test or the indican test of the urine was found such as might suggest an autointoxication from metabolic disorder. In the depressed patients an increase of the non-protein nitrogen content of the blood was found, which might support the theory of Loney that there exists a relationship between certain toxic amines and melancholia.

C. S. R.

TREATMENT.

[53] **Glucose infusions in schizophrenics who refuse nourishment** (Traubenzuckerinfusionen bei Nahrungsaufnahme verweigernden Schizophrenen).—F. OSTER. *Allg. Zeits. f. Psychiat.*, 1926, lxxxv, 383.

THE giving of intravenous glucose was tried in schizophrenics who, when refusing food, became weak and suffered from circulatory collapse. In some tube-feeding had failed, in others it had not improved the physical condition. Glucose was given once or twice daily, three days being the longest consecutive course given, a sterile solution of 7.5 per cent. being given if the heart was fairly good, 10 per cent. in severe collapse, while in the latter cases 75 to 100 c.c. were given, while stronger patients received up to 300 c.c. at once. Cases with uncompensated heart lesions were not thus treated. In no case did any ill effects result either at once or subsequently.

Seven cases are described, all being cases of catatonic stupor or excitement. One acutely stuporose patient, given three injections, improved rapidly mentally and physically and was discharged within a month, while another of longer standing improved gradually after five injections given in two groups, and recovered in three months. This restless and confused patient showed a transient mental clearness for a few minutes after each injection. In the remaining cases improvement in pulse and circulation was a lasting result, negativism decreased and ordinary feeding was resumed though the mental condition showed little change.

The author concludes that the method is well worth using as a means of improving the circulatory condition and general nutrition in such cases, but

that it has no direct effect on the mental illness except possibly through improvement of the cerebral circulation. Any such effect is similar to that obtained with saline infusions and is very much less marked than those reported from cocaine injections in cases of stupor by various authors, to whose work references are given.

M. R. B.

[54] **Ultra-violet radiation in mental hospital practice : a preliminary survey.**— K. K. Drury. *Jour. of Ment. Sci.*, 1927, lxxiii, 200.

Most mental patients have a greater chance of recovery when their physical condition is good, and it is believed that ultra-violet radiations will thus materially aid. In the County Mental Hospital, Stafford, the writer has given a thorough course of light-baths to all suitable new admissions and some previous but recent cases. The results to date are stated to be promising, with three exceptions. These are, agitated melancholiacs, acute maniacs and epileptics. These classes appear to become worse. The maniacs and patients presenting maniacal features become quieter during exposure, but immediately afterwards become more and more restless and noisy. Cases of epilepsy improve physically, but the fits are increased in number. Those so far treated over a period of one month show increases varying from 20 to 150 per cent. in the number of fits over the previous month. The physical condition of the precocious dements shows improvement from radiation, in particular the catatonic cyanosed cases. There is no concurrent mental amelioration, though some become more talkative and exhibit more body movement than before. Quiet delusional patients have shown little mental change, but the irritable type is more amenable. The large class of admissions comprising the simple melancholias, manic-depressives and confused cases appear to benefit from the radiation. No cases of general paralysis have so far been thus treated.

C. S. R.

[55] **Group psychotherapy for neurotics as a special method** (Ueber Psychotherapie an Kollektiven von Neurotikern als besondere Methode).— W. Guilarowsky. *Allg. Zeits. f. Psychiat.*, 1927, lxxxvi, 56.

Before the revolution neurotics in Russia were generally treated in private institutions and individual methods of psychotherapy needing the expenditure of time were applied. Russia is now giving most attention to preventive medicine, and in her present treatment of neurotics considers chiefly not the personal problems of the individual, but his fitting into the social scheme of the community.

Following the view of Dejerine and Gauckler, who suggested that the social factor is important for neurotics, and that for their treatment a most important element is the environment, which should include a considerable of recovering fellow-patients, and further that of Marzinowski, who emphasises the working out of a system of ideals and striving towards increased self-

mastery, the author describes how the problem of Russia has been tackled, where the stress of the past years has produced a large crop of neurotics, misfits of all social classes who now claim treatment from the public health service.

To cope with this situation the Commissariat of Health has created a system of institutions enabling a satisfactory classification of different types of case to be made, and giving to each type the environment and treatment most suitable. Patients suffering from real exhaustion, undernourishment, or physical weakness, can usually be rapidly cured by a sort of Weir-Mitchell treatment of bed and rest, with a little suggestion. A few specially severe cases are selected for individual prolonged psychotherapy, while for the mass of the more chronic and stubborn neurotics the essence of the treatment given depends upon sorting them into groups in whom definite ' group-feeling ' can be created. This sorting out is done at the university clinic, where preliminary treatment is given. Then comes a sort of " mass-individualisation." In various sanatoria patients are brought together in groups having some degree of similarity in their symptoms ; for each group activities are planned which tend to the formation of a ' group-spirit ' and occupy the patients fully. Stress is laid upon community feeling, re-education by work and the pride of the group in its work, each patient being made to feel himself one of a group. Thus at every turn in his daily life his individual suggestibility is reinforced by the group suggestibility.

An atmosphere of health is aimed at ; patients lacking self-control, with fits, outbursts of emotion and so forth, who might, as it were, infect a group, are isolated in sections where more intensive treatment and re-education can be given. In the other sections medical attention is given to the solving of individual conflicts at a definite treatment time, and outside this time talk about illness and symptoms is discouraged, no complaints being heard and no attention given to the illness, the patients being told at the start that while all necessary attention is being given to their treatment, they must look upon themselves and will be looked on as really not ill. All patients are expected to occupy themselves, handicrafts, gymnastics, eurhythmics, and special occupations being used, having regard to the needs of the group, and with the general aim of training the patients in the control of reflex and automatic movements in response to external stimuli, with special exercises adapted to special needs.

A general atmosphere of rivalry in attainment within the group and between groups is cultivated, health, self-control and the improvement of capabilities being the goal, the social outlook being widened as the patient approaches the transition to an independent life. Patients are encouraged to help one another, and a feeling of solidarity is reinforced by group suggestion, to be translated into a wider social environment on recovery. The author holds that this sort of psychological orthopædics is proving a satisfactory solution of the problem before his country.

M. R. B.

Reviews and Notices of Books.

Muscular Contraction and the Reflex Control of Movement. By J. F. Fulton, B.Sc., M.A., Ph.D. London: Baillière Tindale and Cox, 1926. Pp. 644. Price 45s. net.

During the last two decades noteworthy advances have been made in our knowledge of muscle, both as a machine for converting energy into work and as a means of motion. Dr. Fulton's book deals mainly with the second aspect of the problem. He has gathered together in this monograph a host of observations which have been culled from a literature which is both scattered and extensive, as is well shewn by the bibliography of 1066 titles. The book is well printed and fully illustrated. It should prove of great value as a work of reference to physiologists and neurologists alike, though the latter will find that much of the experimental material dealt with is of a highly technical character.

Some of the outstanding features of the book will be briefly summarized. The first half of the book deals with the nature of the contractile response of individual skeletal muscle fibres. There is an admirable historical introduction which deals first with the work of Galen, Croone, Steno and Willis. Then the studies of Haller on irritability, the observations of Galvani and du Bois-Reymond on the electrical changes in muscle, and of Helmholtz on heat production are considered. Modern work is then reviewed, leading up to the proof by Pratt and Eisenberg by direct observation with the microscope that the 'all-or-none' law applies to individual muscle fibres. The properties of isolated muscle are systematically considered. The theory of 'chronaxie' is discussed, and it is concluded that 'chronaxie' of irritable tissues runs parallel with the magnitude of the latent period and the rate of conduction in the tissue. Such old problems as tetanus, superposition, and the features of the isometric twitch are considered, and the results detailed are largely based on personal observations by the author. It is shewn that if the circulation is intact, fatigue to exhaustion of one group of fibres in a muscle does not lead to fatigue of adjacent fibres which are protected from the action of metabolites which are accumulating in neighbouring tissue. The relative unfatiguability of postures is due to rotational activity of the individual constituents of the muscle. Though an equal number of fibres are always performing in an 'all-or-none' manner, it is not the same fibres which are functioning all the time. The vexed problem of the innervation of the individual fibre is discussed; plurisegmentally innervated fibres are not uncommon in the hedgehog, but it is uncertain whether this is a widespread phenomenon. There is a short account of the nature of the contractile process, based largely on work which has been carried out in Hill's laboratory. The curious observation of Fenn is considered—that when

a muscle shortens the total amount of heat liberated is the same as that obtained during isometric contraction, and that there is also an additional liberation of energy which is proportional to the amount of work done.

The second half of the book deals with the reflex control of movement, and is based mainly on recent contributions from the Oxford laboratory by Sir Charles Sherrington and his pupils. This section will be of greater interest to the clinical neurologist. The knee-jerks of the spinal and decerebrate animals are compared. The spinal jerk is a short tetanus resulting from four to eight volleys of impulses at 200 per second. It has three times the duration of the decerebrate knee-jerk, has a longer latent period, and shews a smooth curve of relaxation. In the decerebrate animal the knee jerk usually has the duration of a single twitch and the phase of relaxation is interrupted by a "hump" at half-relaxation, called the "myotatic appendage," which is probably equivalent to the shortening reaction of tonic muscle. It is perhaps unfortunate that no attempt is made to correlate these observations with clinical studies of the knee-jerk.

Two theories are considered to account for reciprocal innervation ; (1) the older 'interference' theory, which is based on the well-known Wedensky phenomenon in peripheral nerve, and which has been elaborated in recent years by Lucas, Adrian and Forbes ; and (2) the newer chemical view, which postulates the liberation about the nerve-cells of a specific inhibitory substance which can antagonize a specific excitatory substance which is liberated in the same region. The response of muscle to stretch is dealt with in detail after the work of Liddell and Sherrington.

The observation of de Kleijn is noted that if nystagmus is produced by irrigation of the labyrinth and the tensions of the external and internal recti are recorded, it is found that as one contracts the other relaxes. The reversal of reciprocal inhibition by means of strychnine is now denied ; the results which were previously obtained are attributed to strychnine causing augmentation of excitatory reflexes. If a homogeneous group of inhibitors is stimulated the inhibitory effect is still obtained after the administration of strychnine. There is a useful review of tonus along the lines of Cobb and Adrian. The work of Hunter is critically examined, and stress is rightly placed on the work of Orbeli on the sympathetic control of skeletal muscle. This author stimulated the motor nerves to a muscle till fatigue ensued. It was then found that stimulation of the sympathetic fibres caused an increase in the size of the twitch, and accelerated the process of recovery. It is surprising to find that the physiology of the labyrinth is not dealt with, and that no adequate account is given of the work of the Utrecht School on postural reactions.

The observation of Bremer and of Miller and Banting is emphasized that stimulation of the vermis of the cerebellum causes inhibition of decerebrate rigidity. Recent experimental work on the cerebellum is considered, and here again little attention is paid to the clinical observations of Holmes and others.

The appendix contains a detailed description of the torsion wire myograph of Sherrington. There is a full author and subject index.

This monograph can be cordially recommended to a wide circle of readers as a comprehensive and lucid survey of an important aspect of modern physiology.

An Introduction to the Theory of Perception. By Sir JOHN H. PARSONS, F.R.C.S., F.R.S., Ophthalmic Surgeon, University College Hospital, etc. Cambridge University Press. 1927. Pp. 254. Price 18s. net.

A BOOK of this kind must make an appeal to neurologist and psychologist alike, for it represents an attempt to deal with the afferent system, as it may be called, from lowest to highest levels, not only in a physiological, but also in a biological sense. That is to say, the author examines the mechanisms of perception (or what stands for perception) from the lowest animal species to man, interpreting the reactions of the former by what is known introspectively of the latter. Nor does he confine himself to common sensation: he develops his theory by special reference to a sense-avenue with which he is completely familiar, viz., the visual.

The general view is adopted that there is evidence of the existence of a dual mechanism in the sensory system, and it is of interest that the author's conception of this differs materially from that both of Head and of Foerster. He distinguishes a primitive or dyscritic stage, one of little discrimination and little differentiation, from an epicritic stage, with a high degree of both of the latter processes, though he admits that "between the two are many gradations of each which are difficult to unravel." While this general thesis is supported by a wealth of evidence from human and comparative anatomy and physiology, certain arguments are advanced in favour of it which are open to some criticism. For example, Parsons follows Head in denying cortical projection of painful impulses, although clinical data militating against this view have been recorded by Piéron, Foerster, and many more. He believes that the optic thalamus is "the seat of painful sensations," though Graham Brown has shown that the cases on which reliance is placed for the belief are capable of another interpretation. Whatever conclusion may eventually be reached as the result of further inquiries, in all probability the general statement mentioned above holds good; at present the details have not received anything like universal acceptance.

The greater part of the volume is taken up with an examination of the evidence for the existence of a dual system in respect of visual processes. This part is highly technical and of more interest for the ophthalmologist than for other specialists. But it forms a valuable contribution to an immensely difficult subject.

Sir John Parsons' erudition has furnished the reader with a mine of information of a varied kind in respect of the sensory systems and of sensation and

perception as a whole, which his selective ability has as it were combed out and made to run the gauntlet of his own criticism. One or two statements, however, ought, we think, to be revised. As an instance, on page 24 the author says that the Reissner fibre links the olfactory and visual receptors with the spinal motor common paths to the skeletal muscles; according to the researches of the late Sir Victor Horsley it is extremely doubtful whether the fibre has a nervous structure at all; both in its normal structure and in its not reacting to injury it differs materially from any known nerve fibre or tract.

L'Herpès et le Zona: Ectodermoses Neurotropes: Étude Étiologique et Pathogènique. By C. LEVADITI. Paris: Masson et Cie. 1926. Pp. 388.

In this book Levaditi has expanded considerably the chapter on herpes in his previous publication, *Ectodermoses neurotropes* (1922). This chapter was only twelve pages long, whereas the present volume is almost entirely concerned with the experimental study of this disease. To the neurologist the last three chapters, which deal with zoster and epidemic encephalitis, and their relationship to the virus of herpes, are of the greatest interest. They occupy only 74 pages, but it would be impossible to understand the author's argument in them, or to form any opinion on the justice of his conclusions, without a knowledge of the experimental work which is detailed in the first 300 pages.

The study of the herpes virus and of its transmission to rabbits possesses a great fascination for all who are interested in the pathogenesis of disease. It is a filter-passing virus, which possesses special affinity for the ectoderm and the nervous system, apparently leaving the other tissues of the body severely alone. Possibly in consequence of this peculiarity, it does not produce any humoral immunity: the serum of an immune animal has no protective power on a fresh animal, either when injected at the same time as the virus, or when previously mixed with the virus in vitro. Yet immunity which appears to be purely cellular in nature is easily produced, and, though it is most complete in the inoculated region, spreads to the other susceptible tissues of the body. The mechanism of this spread is far from clear. The immunity does not radiate out gradually from the inoculated area, but appears in every part of the body at the same time. Inoculation of the cornea, possibly owing to the poor vascularity of this region, usually fails to immunise the rest of the body, and only partially immunises the other cornea, although the inoculated cornea is completely immunised. Hence corneal inoculation has been chiefly used for crossed immunity experiments between various strains of virus, as the same animal can be used both as test and as control. This form of immunity relates the virus of herpes to that of vaccinia, and separates it from most of the others which have been studied experimentally. In man, immunity seems to be very capricious, and many people are subject to recurrent outcrops of herpes.

The thorough study of the herpes virus has made it possible to compare it with the strains of encephalitic virus isolated by Levaditi, Doerr, and others from cases of encephalitis lethargica. There appears to be no escape from the conclusion that these viruses are identical in nature, though not in virulence, with that of herpes. Crossed immunity experiments show that they are at least of the same family, and in experimental work they behave in an exactly similar manner. The only possible question then is, whether the patients who served as sources of the virus carried the virus of herpes as well as that of encephalitis lethargica. This still remains possible, although the recent work of Perdrau (which Levaditi does not mention) provides a strong argument against this theory. Levaditi states this objection fairly, and answers it frankly, if not quite convincingly. There are two main arguments in his favour; (1) the fact that of very many injections of cerebrospinal fluid or brain matter from cases other than encephalitic or herpetic, transmissible herpes virus has only been obtained once (by Flexner and Amoss from the cerbrospinal fluid of a case of neurosyphilis). Even the cerebrospinal fluid of patients suffering from herpes has only yielded transmissible virus to one pair of workers. (2) Encephalitic virus appears to have considerably greater tendency to affect the nervous system than herpetic virus. When inoculated on to the cornea it usually causes the death of the animal from encephalitis in seven to ten days, whereas with herpetic virus either no encephalitis occurs, or it is less rapidly fatal.

Levaditi is less certain as to the experimental work on zoster, which has given very discordant results in different hands. The only fact which emerges from this confusion is that there is no demonstrable relationship between the virus of herpes and that of zoster. It seems indeed to be doubtful whether the virus of the latter disease exists in the vesicles at all.

The work of Goodpasture and Teague on the passage of the virus of herpes up the nerve trunks, probably via the axis cylinders, and its spread in the nervous system is reviewed and a short account of the morbid histology of the various lesions is given.

With the exception of the English work of 1925, to which reference has already been made, the book is fully documented and brings the subject fairly well up to date. In spite of the technical nature of the subject, the author has made it everywhere readable and in places extremely interesting.

J. G. GREENFIELD.

Mind and Personality. By WM. BROWN, M.D., D.Sc. London: University of London Press. 1927.

THIS book is a collection of more or less popular essays on a wide variety of psychological subjects. It is evidently not intended as the writer's ultimate contribution to the subject of the title, being didactic rather than philosophical in manner. Indeed the interest of the essays lies not so much in the discussion of personality (of which comparatively little is said) as in the ethical chapters,

and in the author's attempt to reconcile Freudian psychopathology with orthodox religious belief. The author claims to be successful in doing so, on the ground of his own intimate personal experience. His recognition of the reality of the world of values is opportune and his emphasis on this reality a useful corrective to the materialist attitude so commonly nourished (in spite of what Dr. Brown says) by psychoanalytic experience. It is a good thing, too, to find that Dr. Brown refuses to generalise psychopathological theories, by extending them to all normal instances of a certain class; for example, he refrains from identifying conscience as commonly understood with the pathological conscientiousness discovered by Freud. It is a pity, however, that in defending religious belief against the assaults of certain psychoanalysts Dr. Brown felt obliged to adduce the naive evidence that analysis did not shake his own religious belief, nor does it undermine that of his patients. One wonders also what he means by saying that in mental hospitals sex and religion are often closely united, but that it is then a matter of superstition rather than of true religion. Not many psychiatrists would agree that it is only in late and more chronic stages that mental diseases show pronounced and identifiable characteristics. Psychiatry is not quite so backward as that.

The book as a whole is a welcome attempt at the restitution of concepts of value to their due position in human psychology.

An Introduction to Forensic Psychiatry in the Criminal Courts. By W. Norwood East, M.D. (Lond.), Medical Inspector, H.M. Prisons, England and Wales, etc. London: J. and A. Churchill. 1927. Pp. 381. Price 16s.

To the remark of the author in his preface, that at present there appears to be more interest in, and better appreciation of, the possible connexion between certain varieties of antisocial conduct and abnormal conditions of mind and body, all who deal with the mind diseased will subscribe. Acceptance of the possible interrelation must not, of course, be thought to provide a simplistic explanation of all wrong-doing, and it is precisely here that caution is necessary, for sweeping generalisations arise with painful ease from particular instances in actual life, where the connexion was unmistakeable and impressive. No one is better fitted than Dr. Norwood East to indicate principles of approach to the difficulties of the question. His professional position is such that of necessity he has given weight alike to medical and to legal considerations, and his conclusions therefore are the more noteworthy.

The method followed in this vastly interesting volume is to illustrate the development of crime and of criminal tendencies in those who, medically speaking, are classifiable as belonging to a series of diseased groups, viz., mental defectives, cases of moral imbecility and moral insanity (so-called), paraphrenics and paranoiacs, organic dements, alcoholics, epileptics, psychotics and psychoneurotics, and, finally, those who appear to feign insanity. Clinical illustrations are supplied passim, no fewer than 81 being narrated in greater or

less detail. Possibly the most valuable chapter in the book is that on criminal responsibility, the debatable ground on which two great professions meet, too often only to quarrel, Summarising Dr. Norwood East's attitude in connexion with this problem, we may say that he holds that "miscarriages of justice" rarely or never occur, as an actual fact, that twenty years' experience does not enable him to recall a single case where conviction should have been replaced by acquittal on the ground of insanity, and that alterations in the law might really, in his opinion, result in its less elastic administration, with consequent hardship to the offender.

Anatomie topographique du système nérveux central. By G. GUILLAIN and I. BERTRAND. Paris: Masson et Cie. 1926. Pp. 322.

IN appearance and system this book resembles closely that of Foix and Nicolesco on the anatomy of the midbrain and basal ganglia. It does not enter into such minute detail as the latter, but covers a wider field. The plan of the book is to describe shortly the main points of the structure of the human cerebrospinal axis as seen both by the naked eye, and in stained sections. The latter are taken both in the horizontal and coronal planes, and are reproduced either from photographs or drawings of actual sections. The description is based on these figures and while it is more detailed than a mere description of the sections would be, it lacks the completeness of the more usual method of description. This method of presentation gives the neuropathologist valuable data for the study of his material but does not convey to the student of the anatomy of the nervous system a tridimensional conception of the structure of the brain. Probably both systems are needed in teaching. Certainly that used in the present volume is essential for the guidance of laboratory workers, and as such a guide the book should be of great service. Excellent illustrations and concise letterpress make it easy to use, and it appears to be more complete than any other anatomical text-book of the same kind.

A complete index both to letterpress and to illustrations would have still further enhanced the value of the volume as a book of reference, but unfortunately no index of any kind is given.

J. G. GREENFIELD.

Malarial Psychoses and Neuroses; their Medical, Sociological and Legal Aspects. By WILLIAM K. ANDERSON, M.D., F.R.F.P.S. (Glas.), Professor of Mental Diseases to the Anderson College of Medicine, Glasgow. etc. London: Humphrey Milford, Oxford University Press. 1927, Pp. 395. Price 42s. net.

MEDICAL research seems to be reaching a stage when nothing short of individual monographs suffices for adequate description of the diseases constituting the totality of medicine; specialism and augmented knowledge force us either to resort to the encyclopædic or the monographic method for their expression.

If some topics thus handled scarcely justify the procedure the criticism is not applicable to malaria, which is the oldest disease of which we have any reliable record, as Professor Anderson points out, supporting the assertion by instructive quotations from Hippocrates, Terence, Cicero and others of the classics. Yet a library of volumes on malaria gathered through the centuries does not comprise any single one comparable to this, which, *pace* its author, ought to have been entitled "Malaria of the Nervous System." Much more than the technical psychoses and neuroses are included in the neural syndromes of the disease, seeing that they range from toxic psychosis to peripheral neuritis, from organic dementia to acroparæsthesia. And this is no more than is to be expected, for invasion of the nervous system by a noxa of diffuse localisation is capable of manifesting itself in symptoms as diverse in extent as the ramifications of that system and in degree as the resistance of the patients and their constitutions.

To have patiently collected personal and previously recorded malarial syndromes of this wide category, to have selected with care and arranged in logical order a mass of clinical material so various and unrelated, implies the application of unremitting industry and the possession of the valuable instinct of knowing what to discard; in the result Professor Anderson's contribution to this aspect of malaria is of conspicuous merit, and one which it is safe to say has never been excelled and hardly been even approached.

Other aspects of the disease, however (medico-legal, malaria and alcohol, latent malaria, the endocrine and sympathetic systems in malaria, etc.), form the subject of concise excursuses, which enhance its all-round value. There are a number of fine coloured plates and other illustrations, clinical and pathological. The bibliography deserves special mention because of its unusual comprehensiveness; it extends to no less than 35 pages.

S. A. K. W.

Die Leitungsbahnen des Schmerzgefühls und die chirurgische Behandlung der Schmerzzustände. By Professor Dr. O. FOERSTER, Breslau. Berlin and Vienna: Urban & Schwarzenberg. 1927. Pp. 360. Price M 19.50; bound, M 21.90.

THIS is a brilliant monograph. It embodies a series of studies of the sensory system, anatomical, physiological, pathological, clinical and therapeutic, of great interest and of practical importance. While some of the author's physiological conclusions are admittedly speculative, they are always feasible; on the clinical and therapeutic side they are those of a master of his subject. Reading through the volume one is again impressed by the consideration that much of our knowledge in respect of sensation is floating, undetermined, inexact—is made up of probabilities rather than certainties. A conspectus of this kind is additionally valuable in that it emphasises difficulties and analyses divergence of opinion, and leads the reader back to the basis of all

sure advance, viz., collocation and correlation of actual observations, with due attention to the results both of experiment and of treatment.

The first part of the volume provides a remarkably complete investigation of the present state of anatomical and physiological knowledge of the sensory system, from peripheral receptors to cortical and psychological synthesis; the second part deals with the painful conditions which the clinician is called on to treat, ranging from lesions of the peripheral nerves to headache. Well illustrated and well arranged, we know of no single contribution to the subject that can be compared with this, which is a monument to the erudition of its distinguished author.

Space will not allow of any detailed discussion of its novelties and its debateable points, which deserve an article to themselves. Suffice it to say that no such outstanding contribution to the subject has appeared since the beginning of the century, and it will undoubtedly form the standard work for reference henceforward. Its appearance in an English edition is much to be desired.

S. A. K. W.

Psychopathology; its Development and its Place in Medicine. By BERNARD HART, M.D. (Lond.), F.R.C.P. (Lond.), Physician in Psychological Medicine, University College Hospital, etc. Cambridge: University Press. 1927. Pp. 156. Price 7s. 6d. net.

IN a convenient volume Dr. Bernard Hart has reprinted two former papers of his, dealing with the psychology of rumour and with the methods of psychotherapy, and has incorporated also his recent Goulstonian lectures to form together a presentment of the development of psychopathology as an accepted science of to-day and a critical description of divergent views of its chief exponent schools. If most students of the subject are already familiar with Dr. Hart's writings they should none the less present themselves with this clearly printed and nicely got-up volume; its intrinsic merits need no recommendation. Dr. Hart's attitude is to some extent that of the eclectic, probably a wise position in these days of revision; but it is clearly based on original thinking and on personal investigation of psychopathological material, so that no enthusiast for one or other particular school can take exception to his criticisms as being uninformed or unpractical. The book forms an extremely useful *mise au point* both for the clinical and the academic psychologist, and is assured of widespread appreciation.

Thought and the Brain. By HENRI PIÉRON, Professor at the Collège de France. Translated by C. K. OGDEN, Editor of "Psyche." London: Kegan Paul & Co. 1927. Pp. 262. Price 12s. 6d. net.

MR. OGDEN deserves well of the intellectual public for his translation of Professor Piéron's fine volume entitled *Le Cerveau et la Pensée*, which was published in 1923. The latter was recognised at the time as a contribution

of outstanding merit to the always interesting and difficult problems of the interrelation of mind and brain. It contained an amazing amount of neurological material of precisely that kind of which the student of organic neurology rather tends to fight shy, inasmuch as it is concerned with *Grenzgebiete* into which he gropes his way with some hesitation. What pleased most in connexion therewith was the approach of the author strictly from the neurological, as opposed to the psychological side, yet the book was conspicuous for its fairness and for its obvious sympathy with the standpoint of the student of mind. The book has served as an introduction to the problems mentioned above second to none, in the reviewer's experience, for its combination of organisation of data with ability to draw therefrom conclusions of both neurological and psychological import—a feature conspicuously wanting in many more ambitious productions.

On the whole, Mr. Ogden's translation reads easily and follows the original not slavishly but with sufficient closeness, when allowance is made for idiomatic differences. Yet some comment seems worth while. It is regrettable that the translator uses the word 'medullary' instead of 'spinal' as an equivalent for the French 'medullaire,' since the English student is familiar with 'medullary' as standing for 'bulbar' (we use the term medulla almost entirely in reference to the medulla oblongata). 'Prickly pain' cannot be considered a proper rendering of 'douleur à la piqure,' and 'median' for 'mesial' is similarly apt to be misunderstood. "On the median side there is evidently a confusion of the two lateral innervations, each corresponding to a decussation of the hemisphere," is a faulty translation of "il y a évidemment, sur cette région médiane, un enchevêtrement des deux innervations latérales correspondant chacune à l'hémisphere croisé." However, these and various other imperfections do not detract from the worth of the translation as a whole, and can in no way, of course, impair the value of the book.

S. A. K. W.

Ueber Kongenitale Wortblindheit (angeborene Leseschwäche). By Dr. FRITZ BACHMANN, Münich. With 4 illustrations. Berlin: S. Karger. 1927. Pp. 72. Price M. 4.20.

ANY contribution calculated to throw some light on the still obscure problem of the child who is congenitally word-blind is welcome. Dr. Bachmann's slender brochure deserves attention, although he has not been able to elucidate the essential nature of the condition better than those who have preceded him, nor has he, so far as we have noticed, given full consideration to the recent work of Orton on the subject, referring solely to a now somewhat old communication by that author. The accounts of Dr. Bachmann's personal cases are descriptive rather than analytic, and have their value. According to him, the chief features of the condition may be summed up as follows: inability to associate correctly the individual letters forming a given word,

taking the form both of defect in arranging them properly for writing or combining the letter-sounds into the word for purposes of reading. In addition, failure to find the right sound of a word in pronouncing its parts, its correct 'word-melody,' is usually noticed, and also failure to grasp the symbolic meaning of the word. Once more, 'speech-feeling' is faulty, thereby being signified the 'natural' effort to build words into a sentence and to arrange them in the way that corresponds to the speech customs of the nationality of the individual concerned.

Dr. Bachmann dismisses as pure conjectures all previous efforts to correlate the condition with lesions of specific, localisable, cerebral mechanisms, since apparently no autopsy on such a case has up to the present been conducted. That a definite connexion nevertheless between structure and function is likely appears from the fact of the inheritance of word-blindness in some families, as reported by Hinshelwood and by Stephenson.

Psychology and Ethnology. By W. H. R. RIVERS. International Library of Psychology, Philosophy and Scientific Method. London: Kegan Paul, Trench, Trubner & Co., Ltd. 1926. Pp. 324. Price 15s.

THIS is a collection of essays on psychology and ethnology. In the psychological section perhaps the most interesting are those on Freud's concept of the censorship, which Rivers tries to bring into line with the control of the cortex over lower centres, and on the primitive conception of death. The failure of the primitive to distinguish between those whom he thinks ought to be dead and those who are dead is a decidedly fascinating question and one which might be introduced into more cultured society.

In the ethnological section there are several interesting papers on customs and culture in Polynesia. Professor Elliot Smith contributes an introduction, in which he draws attention to Rivers's powers of applying his knowledge in one department to clarify his investigations in another.

The papers as a whole come up to the standard we have learnt to expect from the late Dr. Rivers and the publishers are to be congratulated in presenting this further collection of his work.

R. G. G.

Les Différentes Formes de l'Arsenicisme. By Professor KARL PETREN, Lund, Sweden. Paris: Masson et Cie. 1926. Pp. 128. Price not stated.

THIS little book deals mainly with the question of chronic arsenical poisoning due to contamination arising out of domestic, as opposed to industrial, contact, and therefore with an aspect of the subject of some importance and hitherto to a large extent rather neglected. Some time ago a questionnaire was sent round to the physicians of Sweden bearing on the development of arsenical poisoning from such sources as domestic utensils, wall decorations, and others connected with the dwellings of the persons concerned, and much useful in-

formation was collected. It has been subjected to a critical analysis by Professor Petren, and the results are here tabulated and examined. Briefly, the author finds that wall-papers for which paints containing arsenic have been utilised in printing, and to a less extent painting of walls with pigments mixed with arsenic-containing oil, are mainly responsible, although in minor degree contamination from draperies, clothes and dress materials, even from stuffed animals, has been demonstrated. The earliest symptoms are headache and increasing fatigue, to which acrodynia and neuritis may subsequently be added. A full survey of the symptomatology of 'domestic' arsenicism is given, and usefully compared with that of 'professional' cases. Nor is the variety arising from internal medication overlooked. A section is devoted to the problems of the mode of entry of the poison.

With a good bibliography, this modest volume forms a valuable contribution to preventive and hygienic medicine, and reveals how much is yet to be accomplished along such lines.

Plötzliche und akute Erkrankungen des Nervensystems ; ihr Erkennen und ihr Behandlung. By Professor Dr. S. FLEISCHMANN. With 50 illustrations. Berlin : S. Karger. 1927. Pp. 302. Price M. 12 ; bound, M. 14.

IN a series of some 16 'lessons,' after an approved continental method, the student and practitioner of medicine have been provided by the author with a readable account of the symptoms of acute nervous affections such as they, fully as much as the specialist, are likely to encounter in the course of their daily work. The descriptions are partly semiological, partly nosographical ; among the former are included comatose states, the sequelæ of cranial injuries, varieties of acute poisoning, the epilepsies, and so forth, while under the latter come encephalitis and poliomyelitis, meningitis, etc. It may be matter for surprise how much of clinical neurology falls to be included under the category of acute disease, yet possibly a majority of his cases might be found by the physician to belong to the group. Professor Fleischmann's method is didactic rather than critical, as befits the style of the volume, which contains few references to the opinions of other workers and yet reveals on perusal a sound familiarity with nervous disease in its protean forms and a noteworthy ability to communicate to his readers the salient features of nervous syndromes in a way conducing to assimilation. The volume is an excellent exemplaire of the particular teaching technique adopted.

Epidemic Diseases of the Central Nervous System. By A. SALUSBURY MACNALTY, M.A., M.D. (Oxon.), a Medical Officer of the Ministry of Health, etc. London : Faber & Gwyer, Ltd. 1927. Pp. 194. Price 12s. 6d. net.

THE diseases constituting the basis of Dr. MacNalty's researches as an epidemiologist are cerebrospinal fever, poliomyelitis, polioencephalitis, and

so-called encephalitis lethargica. In the chapters dealing with these seriatim will be found incorporated a quantity of statistical information, of great value to the student of acute nervous disease, which as a rule tends to be somewhat inaccessible otherwise. The epidemiological aspect, in point of fact, is rather neglected by the clinical neurologist, who cannot fail to have his horizon widened and illuminated by a perusal of these interesting pages. No less informative are the introductory sections dealing with the history of the diseases concerned, while questions of preventive medicine, of sequelæ and of treatment are not ignored. Germane topics also touched on by the author relate to epidemic nervous disease in animals, and the problems of epidemicity considered as a whole.

The book is well documented and contains numerous references to a scattered literature. It should be in the hands of all who would have their knowledge of acute nervous disease strengthened by something more than a mere bedside acquaintance with specific cases.

Les Affections des Os et Articulations. By ANDRÉ LÉRI, Professeur-agrégé in the Faculty of Medicine, Paris. Paris: Masson et Cie. 1926. Pp. 460. Price 58 fr.

A COMPANION volume to that by the same author on the affections of the vertebral column (reviewed in this JOURNAL, January, 1927), the present study of the diseases of bones and joints is equally informative and authoritative. It deals with a series of conditions many if not all of which are as likely to come under the notice of the neurologist as of any other specialist. Indeed, we think it reasonable that they should have been thus investigated by one who is a professing neurologist, for he, by training, is capable of appreciating their bearing on the nervous system better than anyone else. Among the conditions here described in a fascinating way are cleidocranial dysostosis, facial and other hemiatrophies and hemihypertrophies, oxycephaly, anencephaly, hypophyseal dwarfism, osteomalacia, rachitis, Paget's disease, the fibrocystic osseous disease of Recklinghausen, and others no less intrinsically interesting if pathologically obscure. In these twin volumes Professor Léri has gleaned a field hitherto largely ignored, isolated contributions apart, and they represent a noteworthy advance in the collection and description of rather out-of-the-way cases which nevertheless are not in any strict sense rare. In addition to disease entities, the author provides useful chapters on semiology, apropos of nodosities of the hand, for example, which show his powers of clinical observation and the width of his clinical experience.

Pathologie et Méthodes d'Examen du Liquide Céphalo-rachidien. By R. BORCHEWSKY. Paris: Masson et Cie. 1926. Pp. 56. Price 7 fr.

THE title of this little book would suggest that the author had attempted to compress our knowledge of the cerebrospinal fluid into 56 small pages. But

nothing appears to have been farther from his intentions, for his book deals only with meningitis, and that in a very incomplete manner. His purpose in writing it seems to have been to explain why one specimen of meningitic cerebrospinal fluid teems with bacteria, but contains very few cells, whereas another has a vast number of cells, but no bacteria. The explanation which he gives, viz., positive and negative chemiotaxis, is not new, nor does it appear by itself to explain all the phenomena of so-called 'sympathetic' or aseptic meningitis with purulent fluids. He describes a few of the more old-established methods of examination, and one or two more recent improvements, such as the vital staining of cells, and Ronchese's modification of Ravaut's albumin method. But this part of the book also is very far from complete.

J. G. GREENFIELD.

Der Bárányesche Zeigeversuch ; seine physiologischen Grundlagen und klinische Methodik. By Dr. ERNST WODAK, Prag. With 26 illustrations. Berlin and Vienna : Urban & Schwarzenberg. 1927. Pp. 80. Price M. 3.

THE chief purpose of Dr. Wodak's essay is to show the somewhat complicated nature of the apparently simple test known as Bárány's pointing test, and to offer considerations both of a physiological and a clinical kind which should lead to some hesitation in giving it a unitary significance when it is modified by diseased conditions. A number of factors, both labyrinthine and extra-labyrinthine, are capable of influencing it, and illustrations are given of its behaviour under experimental circumstances. The general conclusion is to the effect that this modifiability reduces its usefulness for topo-diagnostic purposes.

Les Troubles vasculaires dans le Tabes. By Dr. MAURICE BASCOURRET, ex-interne of the Paris hospitals. Paris : Jouve et Cie. 1927. Pp. 200. Price not stated.

DR. BASCOURRET'S *Thèse* is based on the clinical examination of 70 cases of tabes, of different varieties and degrees, from the viewpoint of their circulatory condition. This has entailed a long research by clinical methods, coupled with an investigation of pathological material from the same angle. His work has led to certain conclusions, one or two of which may be summarised. Aortic lesions are common enough in tabetics, yet actual aortic insufficiency is altogether rare. Vascular hypertension is often found, but it is nearly always symptomless. The tabetic pulse is usually small in direct proportion to the duration of the disease, and with this microsphygmia goes a syndrome of vascular defect in the shape of vasomotor disorder, commonly vasoconstriction. The latter does not result either from endarteritis obliterans or from vasomotor spasm, but appears to be conditioned by lesions of the sympathetic centres in the cord, producing a more or less permanent reduction of vessel calibre.

Compendium of Regional Diagnosis in Affections of the Brain and Spinal Cord. By ROBERT BING, Professor in the University of Basle. Third edition. Translated from the sixth German edition by F. S. ARNOLD, B.A., M.B., B.Ch. (Oxon). With 102 illustrations. London: William Heinemann (Medical Books) Ltd. 1927. Pp. 294. Price 15s. net.

BING's Compendium is so well known in these days that further comment would appear superfluous. Its translation into various other languages than the original German can legitimately be taken to testify to the appreciation which it has continued to earn during twenty years. It forms a striking instance of 'neurology made easy,' to which end its fine diagrams have undoubtedly contributed as much as the brevity and lucidity of the text. This new edition fully maintains the high standard which its author began by setting himself, and its revision and enlargement are a natural sequence to advancing neurological knowledge and to modification of neurological theory. For the English student it will continue to prove a vade-mecum of conspicuous usefulness.

Die Croon-Vorlesungen über Aufbau und Abbau des Nervensystems. Being the Croonian Lectures of Dr. J. HUGHLINGS JACKSON, 1884, translated into German by Dr. OTTO SITTIG, Prag. Berlin: S. Karger. 1927. Price M. 6.60.

IT is clearly a labour of love for Dr. Sittig to translate thus tardily into German Dr. Jackson's Croonian lectures of 1884, on the evolution and dissolution of the nervous system, which have become a neurological classic in this country. The German rendering is smooth and accurate, and will, we hope, lead to a further and wider appreciation in foreign schools of the genius to whose labours English neurology almost owes its existence.